Bridging the Planning Gap: Linking Conceptual Army Design to Military Decision-Making

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13. ABSTRACT *(Maximum 200 Words)*

After almost a decade of war, some senior Army leaders have attributed the challenges experienced in both Iraq and Afghanistan to an inadequate response to complex environmental changes or even blatant misidentification of the problem. By the metaphor of a bridge, this monograph asserts that the planning gap can be successfully linked. The designer-builders—who are the commander, planners, and staff—work together to ensure a seamless design and construction. Four essential criteria were used in this monograph to evaluate the strength of the bridge built in this study: a clearly articulated relation between the conceptual and the detailed; synchronization and synergy between Army planning processes; a common lexicon; and an increase in the efficacy of the operations process. Five substantive recommendations emerge from the research and analysis within this monograph. First, doctrine must return to the fundamentals. Second, the Army should endeavor to combine Army design and MDMP into one rigorous and holistic planning process, refine Army leader and Soldier training and education to instill and develop critical thinking skills at all levels, and focus on further development and publication of assessment, reflection and reframing techniques in military operations. Lastly, further research and experimentation will move the Army towards becoming a truly adaptive military organization.

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Abstract

Bridging the Planning Gap: Linking Conceptual Army Design to Military Decision-Making by MAJOR Erik K. Kober, USA, 137-58-3855.

After almost a decade of war, some senior Army leaders have attributed the challenges experienced in both Iraq and Afghanistan to an inadequate response to complex environmental changes or even blatant misidentification of the problem. Today's global security environment is claimed to be more complex and uncertain than ever before. As expressed in the Army's November 2009 "A Leader Development Strategy for a 21st Century Army," the Army will require leaders to be "effective in the context of ill-defined problems against an enemy likely to present us with a variety of threats." With the vision of fostering more adaptive and flexible leaders, fundamental changes were made in *Field Manual 5-0 The Operations Process March 2010*. Ambiguity over the effective linkages between the Army's conceptual design approach to ill-structured problems and military decision-making process exist in these changes. While conceptual planning is vital to successful operations, its benefit is limited if the linkages to the current detailed planning process remain ambiguous. Effectively bridging the planning gap between conceptual planning and MDMP with linkages provides the synergistic and responsive planning necessary to tackle the complex contemporary operating environment.

By the metaphor of a bridge, the planning gap can be successfully linked. The designer-builders—who are the commander, planners, and staff—work together to ensure a seamless design and construction. The highway of this bridge is the operations process; the centerline is battle command. The bridge's structure consists of the three arches of design: the environmental frame, the problem frame, and operational approach. The weight-bearing linkages, called trusses, include various products and processes that already exist within the operations process, design, and MDMP. Understanding both sides of the planning gap—conceptual and detailed planning— the designer-builders establish abutments through leadership and interaction. To further support this bridge are the five integrating processes: Intelligence preparation of the battlefield; targeting; intelligence, surveillance, and reconnaissance; composite Risk management; and knowledge management. On-ramps and off-ramps of assessment, reflection, and reframing are used to move to and from both sides of the planning gap. It is critical that in the design and building efforts, the designer-builders test the bridge's strength. Four essential criteria were used in this monograph to evaluate the strength of the bridge built in this study: a clearly articulated relation between the conceptual and the detailed; synchronization and synergy between Army planning processes; a common lexicon; and an increase in the efficacy of the operations process.

Five substantive recommendations emerge from the research and analysis within this monograph. First, doctrine must return to the fundamentals. Second, the Army should endeavor to combine Army design and MDMP into one rigorous and holistic planning process. Third, the Army should refine Army leader and Soldier training and education to instill and develop critical thinking skills at all levels. Fourth, the Army must focus on further development and publication of assessment, reflection and reframing techniques in military operations. And lastly, further research and experimentation will move the Army towards becoming a truly adaptive military organization. The military learning organization must not only change the way it thinks, but also the way it organizes and equips itself: it must act as a holistic system. The ability to think, learn and adapt will always be central to the U.S. Army in coping with the complexity and uncertainty of future war, and each of these recommendations moves the Army institution in that direction.

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Introduction

When Conceptual and Detailed Planning are Separated…

The date was August 1, 2007. The evening seemed like any other rush hour for those traveling the eight-lane 35W Interstate over the Mississippi River out of Minneapolis, Minnesota. At 6:05 PM, the commute quickly became anything but usual; according to the final safety report, the 1,907 foot-long bridge which spanned the Mississippi River "experienced a catastrophic failure in the main span of the deck truss" causing a 456-foot stretch of the main span to fall 108 feet into the 15-foot-deep river, taking with it 111 cars.[1] Thirteen people died and 145 were injured that day. The simple reason: conceptual planning was insufficient and divorced from the detailed planning used to construct the bridge. The safety board found that the designers were negligent in maintaining adequate quality control measures and did not provide sufficient guidance, constraints, and construction oversight to ensure the necessary building procedures. For this reason, the bridge builders exceeded the limitations of the design. There is a critical lesson to be gained from this incident: conceptual and detailed planning should never be separated. This lesson about bringing two "separate but closely related" activities together is not limited to architecture alone.[2] It is a lesson applicable to United States Army doctrine.

Understanding the history of detailed and conceptual Army planning is critical to any analysis of current U.S. Army doctrine. In 2005, the *U.S. Army Field Manual 5-0 Army Planning and Orders Production January 2005*, was described as the "Army's keystone manual for

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[1] National Transportation Safety Board, "Collapse of I-35W Highway Bridge Minneapolis, Minnesota August 1, 2007," under "NTSB Accident Report," http://www.dot.state.mn.us/i35wbridge/ntsb/finalreport.pdf (accessed March 20, 2011).

[2] "[S]eparate but closely related components" or "continuum" is an inadequate description of the relationship between conceptual and detailed planning. United States Army, *Field Manual 5-0 The Operations Process March 2010*, (Washington, D.C.: Government Printing Office, March 2010), 2-7, and 3-1.

planning operations."[3] As such, it provided guidance for conducting Army problem solving, the

military decision making process (MDMP), troop leading procedures (TLP), various formats for

Army plans and operations orders, and an explanation of the staff planning process.[4] The 2005

field manual generally discussed the Army problem solving method as well as the necessity of

critical and creative thinking. Through recent combat experience in Iraq and Afghanistan, Army

senior leadership perceived a need to provide a better cognitive tool to accompany MDMP.[5]

Application of available doctrine did not appear to achieve the proper balance of quickly

identifying the intricacies of complex problems while providing the sufficient detailed and

adaptive response to gain the desired outcome.[6]

Army leadership has maintained that the main reason for this shift in problem-solving

doctrine has been the complex environment of modern warfare. This complexity most recently

faced in Iraq and Afghanistan has led to frequent misidentification of the problem utilizing

traditional problem-solving and decision-making processes.[7] As the former U.S. Training and

Doctrine Commander, General Martin E. Dempsey commented:

> If our experience over the last eight years has taught us anything, it's that war and
> conflict will continue to increase in complexity. We know that conflict will be waged
> among the population and for influence on the population, and we know our leaders and
> their soldiers will operate among a diverse set of actors along blurred military, political,

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[3] U.S. Army, *FM 5-0 2010*, v.

[4] Ibid, 2-1 to G-92.

[5] Ibid, 3-3.

[6] Brigadier General Edward C. Cardon, and Lieutenant Colonel Steve Leonard, "Unleashing Design: Planning and the Art of Battle Command," *Military Review*, Volume XC, No. 2, (March-April, 2010): 3-4. BG Cardon was acting as the Commandant of the Command and General Staff College at the time of this article being written. In the article, he reinforces the four distinct goals of design being added into military planning: first, to understand ill-structured problems; second, to anticipate change; third, to create opportunities; and lastly, to recognize and manage transitions.

[7] Richard M. Swain, "Commander's Business: Learning to Practice Operational Design," *Joint Forces Quarterly*, Issue 53, (2nd Quarter, 2009): 62.

economic, religious and ethnic lines with the potential for escalation and spillover in a variety of unpredictable ways.[8]

This expressed view of the future Chief of Staff of the Army demonstrates the Army's belief that the complexity of an ever-changing world will make certainty in war more elusive than ever.[9] As today's expansive networking and global-communication capabilities enable non-state actors to demonstrate an unprecedented ability to impose their will upon the global community, U.S. military leadership claims the current security environment is more complex than ever before.[10] Political and military scientists alike have attempted to address this complexity with models, theories, techniques, and hypotheses. The Army has entertained futuristic approaches such as Network-Centric Warfare (NCW)/Effects Based Operations (EBO), and Systemic Operational Design (SOD) with little progress in effectively dealing with the threats of an uncertain future.[11]

In response to the perceived problem of a complex environment, the Army will require leaders to be "effective in the context of ill-defined problems against an enemy likely to present us with a variety of threats."[12] The Army's vision is to build leaders that thrive in the complex and uncertain security environment of the future. The U.S. Army Leader Development Strategy continues by saying:

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[8] General Martin E. Dempsey, "TRADOC Senior Leader Conference and Social Media." Combined Arms Center BLOG Library, http://usacac.army.mil/blog/blogs/guestblog/archive/2009/08/14/tradoc-senior-leader-conference-and-social-media.aspx) (accessed 1 Oct 2010)

[9] United States Army. "Gen. Martin Dempsey, TRADOC Commander, Departs to Become 37th Chief of Staff of the Army," The United States Army Home Page, under "News." http://www.army.mil/-news/2011/03/17/53412-gen-martin-dempsey-tradoc-commander-departs-to-become-37th-chief-of-staff-of-the-army/ (accessed 26 March 2011). March 16th, 2011, Gen. Dempsey was officially confirmed by the U.S. Senate to be the 37th Chief of Staff of the Army, succeeding Gen. George W. Casey.

[10] United States Army Combined Arms Center, "A Leader Development Strategy for an 21st Century Army," November 25, 2009, under "Army Leader Development Strategy," http://cgsc.edu/ALDS/ArmyLdrDevStrategy_20091125.pdf (accessed 12 March 2011), 2-3.

[11] Cardon and Leonard, "Unleashing Design," 2-3.

[12] Combined Arms Center, "Leader Development Strategy," 1.

> Such an environment demands that we develop leaders who **understand** the context of the factors influencing the military situation, **act** within that understanding, continually **assess and adapt** those actions based on the interactions and circumstances of the enemy and environment, **consolidate** tactical and operational opportunities into strategic aims, and be able to effectively **transition** from one form of operations to another. We seek to develop leaders who thrive in this environment.[13]

Through the Leader Development Strategy, the Army has implemented changes it hopes will have lasting positive effects to combat perceived threats to the national security.

It was within the vision of fostering more adaptive and flexible leaders that fundamental changes were made in the March 2010 field manual.[14] These changes were both physical and conceptual. The *U.S. Army Field Manual 5-0 The Operations Process, March 2010* incorporated several changes to include the conceptual planning approach called design. Physically, the manual maintains the MDMP and TLP as the methods the Army uses to communicate detailed planning through plans, orders, and fragmentary orders, but it completely reframes the Army's view of the conceptual planning process by introducing design. Conceptually, as GEN Dempsey points out in the Foreword, the 2010 manual must be recognized holistically as "the continuous learning cycle of the operations process," and not just the planning manual it once was.[15] This conceptual change provides the necessary foundation for a discussion of how to effectively link conceptual and detailed planning. Unfortunately, the necessary physical changes are not adequate to connect conceptual and detailed planning in practice. The current doctrinal divide that has occurred between conceptual and detailed planning may be taking the Army in the exact opposite direction it desires to go. Design was introduced into doctrine as a tool that provides the commander a new way to think about and approach ill-structured problems. While this form of conceptual planning helps in understanding the contemporary operating environment, its benefit

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[13] Combined Arms Center, "Leader Development Strategy," 2-3. Words are bolded as seen in original text.

[14] U.S. Army. *FM 5-0 2010*, inside front cover.

[15] Ibid.

is limited if the linkages to the current detailed planning process remain ambiguous. The monumental shift in planning doctrine has created a need to connect the original planning processes to the new addition of design. This artificially injected rift into the Army's planning process must be effectively bridged if the Army intends to become the adaptive action-based force it desires to be.

Because of a reasonable desire to avoid restricting the commander and his staff in how they applied the new aspects of the operations process, overly prescriptive detail—which may assist in integrating conceptual planning with detailed military decision-making—was intentionally left out of the new manual.[16] Additionally, the new manual references several other doctrinal manuals for further understanding of how new concepts nest with other established practices and processes.[17] In this treatment, the relationship of the operations process to other doctrinal manuals and processes remains mostly superficial in regard to the connection between conceptual and detailed planning activities. These connective elements between the conceptual and detailed planning are left mainly to interpretation.[18]

Ambiguity over the effective linkages between the cognitive design approach and the

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[16] Lieutenant Colonel Christopher Prigge, former planner and integrator for Army Capabilities Integration Center, Interview by author, Training and Doctrine Command, Fort Leavenworth, KS, 25 Oct 2010.

[17] U.S. Army, *FM 5-0 2010*, v. The Preface points to several other field manuals required to "comprehend" the doctrine contained in the new FM, particularly conceptual planning (design). These manuals are: United States Army, *Field Manual 3-0 Operations February 2008,* (Washington, D.C.: Government Printing Office, February 2008); United States Joint Forces Command, *JP 3-28 Civil Support 14 September 2007,* (Washington, D.C.: Government Printing Office, December 2007); United States Army, *FM 3-90 Tactics July 2001* (Washington, D.C.: Government Printing Office, July 2001) *FM 3-07 Stability Operations October 2008*(Washington, D.C.: Government Printing Office, October 2008); *FM 6-0 Mission Command August 2003,* (Washington, D.C.: Government Printing Office, August 2003); *FM 6-22 Army Leadership October 2006,* (Washington, D.C.: Government Printing Office, October 2006).

[18] U.S. Army. *FM 5-0 2010*, 3-12. The field manual points to the design concept as "the link between design and detailed planning, but the reality of this is that it only connects one way, and further implies that conceptual and detailed planning are separate activities.

Army's detailed planning process persists because most complementary field manuals have not yet fully integrated the changes found in *Field Manual 5-0.* In addition, as the excerpt in Figure 1 from 2010 *Field Manual 5-0* visually depicts, there exists a "planning continuum ranging from conceptual to detailed planning."[19] But the reality is that doctrine has effectively left interpretative freedom to split conceptual and detailed planning into two exclusive activities. The gap that arises between conceptual and detailed planning widens when conceptual planning

What to do and why	How to do it
Conceptual planning establishes objectives as well as a broad approach for achieving them.	Detailed planning works out the particulars of execution based on objectives already provided.
Conceptual	**Detailed**
Such as concept of operations and commander's intent.	Such as movement tables, target lists, and control measures.

Concepts drives details

Details influence concepts

Figure 1. The Planning Construct[20]

activities do not seamlessly connect to the detailed planning activities. From this disconnect in planning efforts, the outcome of "how to do it" does not effectively influence further conceptual attempts in refining "what to do and why" in a timely manner.

The overemphasis on uncertainty and complexity widens the planning gap created by *Field Manual 5-0 The Operations Process March 2010.* As the Director of the Army Capabilities Integration Center, Lieutenant General Michael A. Vane, highlighted in 2008:

> The complexity of today's operational environment requires a different approach to problem solving. It requires the commander's direct participation in a heavily *inductive* reasoning process upfront. This process must produce a well-framed problem hypothesis and an associated campaign design—a conceptual approach for the problem. This

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[19] U.S. Army. *FM 5-0 2010*, 2-7.

[20] Ibid.

appreciation of the problem and the design of a solution can then be handed off to a deductive reasoning process executed by the staff under the commander's direction that, in turn, produces executable plans and orders for implementation. The first process is one of formulation, a creative, heuristic, and iterative activity; the second is one of implementation, a practical, logical, and disciplined linear activity.[21]

LTG Vane's comments infer that thoughtful design and the deductive MDMP are two separate processes. However, recent data from Class 11-01 at the Army's School of Advanced Military Studies contradict LTG Vane's assessment of these processes. In fact, 97% of participants indicated that for conceptual and detailed planning to be successful, the two activities must be mutually supportive, nested, or otherwise connected through an assortment of listed linkages.[22] It is important to remember that the idea that conceptual and detailed activities can and should be split between plan-designers and plan-builders was the root of the catastrophe that occurred in Minnesota in 2007. Just as this separation was not effective in construction of the bridge in Minnesota, separation of conceptual and detailed planning will not simplify the complexities of warfare.

Army design and MDMP should be mutually supportive in every aspect.[23] The military decision-making process—the Army's tactical planning process that analytically formulates and publishes operations orders—contains several important linkages which allow conceptual planning to inform the current Army military decision-making and orders process, and vice-

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[21] Lieutenant General Michael A. Vane, "Foreword," *TRADOC PAMPHLET 525-5-500 Commander's Appreciation and Campaign Design*, *28 January 2008*, http://www.tradoc.army.mil/tpubs/pams/p525-5-500.pdf (accessed 14 Oct 2010)

[22] At the request of the author, 56 of 96(58.3%) of Class 11-01, School of Advanced Military Studies submitted their theses answering the essay question: In the context of the operations process, what are the key elements that connect conceptual planning with detailed planning? Some of the results will be used throughout this monograph to further substantiate assertions.

[23] See footnote 22.

versa.[24] The shared linkages, which will be explained in the following material, should be explicit in doctrine. They must become synchronized with processes, procedures, and systems that already exist. In addition, conceptual planning and the military decision-making process should adopt a common lexicon to inform published orders for successful mission execution.[25] Without effective linkages between the conceptual and detailed planning realms, conceptual planning may never adequately translate into the accuracy required for detailed execution, or conversely, precision detailed execution may find itself consistently solving the wrong problem.

Without further development and refinement of conceptual planning's relationship to the Army's detailed planning and orders production, Army design could find itself misused, misapplied, or rejected by senior leaders. This is what happened in the case of Effects Based Operations (EBO) in U.S. Joint Forces Command.[26] Because of the confusion created by EBO, the U.S. Joint Forces Commander, General James N. Mattis ordered that its "flawed underlying principles…be removed from the Joint lexicon, training, and operations."[27] To avoid such a fate for design, further clarity should be provided to link its conceptual foundation to detailed planning.

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[24]The *U.S. Army Field Manual 101-5 Staff Officer's Field Manual: Staff Organization and Procedure 1997* was the most recent revision to the seven-step military decision making process, and it was termed MDMP, but that process went through a 10-year revision from 1984 until 1997 publication. It was founded on over 100 years of doctrinal planning and decision-making evolution. Two references that further clarify the history of MDMP are MAJ John Marr, "The Military Decision Making Process: Making Better Decisions Versus Making Decisions Better," (Monograph: School of Advanced Military Studies, Command and General Staff College, 2000); and Lieutenant Colonel Thomas G. Clark, Retired, "Army Planning Doctrine: Identifying the problem is the Heart of the Problem," *Military Review*, (November-December 2007), 70-76.

[25] In the "Role of Doctrine and Summary of Changes," doctrine and a common terminology "facilitates the rapid dissemination of orders and fosters collaborative synchronization among units." U.S. Army, *FM 3-0 2008,* D-1.

[26] General James N. Mattis, Joint Forces Command, "Memorandum of Effects Based Operations," 14 August 2008, 1.

[27] Ibid, 6.

In summary, the United States Army continues to focus its attention on how to respond to a world it believes is growing more complex and uncertain. Influential Army senior leaders have commented on not only what future conflict will look like, but also how the Army, its leadership, and its doctrine will be shaped for it. The focus of this monograph is on the influential changes that have occurred in the Army's keystone planning field manual, *FM 5-0 The Operations Process March 2010*. Just as the bridge designer should not be separated from the bridge construction, neither should the activities of military conceptual planning be separated from detailed planning. In order to achieve the adaptive organization the Army desires, conceptual and detailed planning must be clearly united in doctrine. Explicit linkages between conceptual and detailed planning will enable more effective operational planning.

A metaphorical bridge is useful in visualizing the connections between Army design and MDMP. One side of the bridge represents the conceptual side of military planning while the other represents the detailed planning activities of MDMP. This monograph will address some of the most critical linkages between conceptual and detailed planning: the constructive material used to build the bridge. The metaphorical bridge begins with a blueprint, which establishes the framework for its design and construction.

The Bridge Needs a Blueprint…

In the Army's past, the planning gap between the conceptual and detailed has always existed to some extent. In practice, the practitioner has been forced to get to the other side by one means or another.[28] Combat experience, a commander's astute sense of intuition, or a certain coup d'oiel has often been cited as the only adequate answer for bridging the gap between the

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[28] Marr, "Military Decision Making Process," 11-12.

conceptual and detailed planning.[29] Classic theorists recognize the commander and his staff as integral to ensuring there is no physical separation of conceptual and detailed planning activities.

As brought to light in the introduction, a planning gap requires a bridge to connect the conceptual and detailing planning activities of military operations. Bridging the gap between conceptual planning and MDMP with effective linkages provides the synergistic, responsive planning necessary to tackle the challenging demands of today's security environment. The model in Figure 2 will become the basis of metaphor for bridging the planning gap. In this figure, battle command (the center-line of the road) is the doctrinal foundation that links conceptual and detailed planning within the context of the operations process. Like any functional bridge, the traffic should flow in both directions, and this is also where the critical balance between conceptual and detailed planning resides.

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[29] Carl von Clausewitz, *On War*, ed. and trans. Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1976), 100-108; Antoine Henri de Jomini, *The Art of War,* trans. By CPT. G.H Mendell, and LT. W.P. Craighill, (Philadephia, PA: J.P Lippcott & Co, 1862), 49-55; and B.H Liddell Hart, *Strategy*, 2nd Revised edition, (New York, NY: Praeger Publishers, 1954), 343-350. Clausewitz, Jomini, and Lidell Hart, among other classical military theorists typically point to a variety of other methods for producing the critical link between the conceptual and detailed planning. Even the progress the U.S. Army has made in emphasizing how to think, the introduction of yet another new concept has not been a seamless integration, and building a bridge across this understanding gap will take some critical thinking, time, and applied effort.
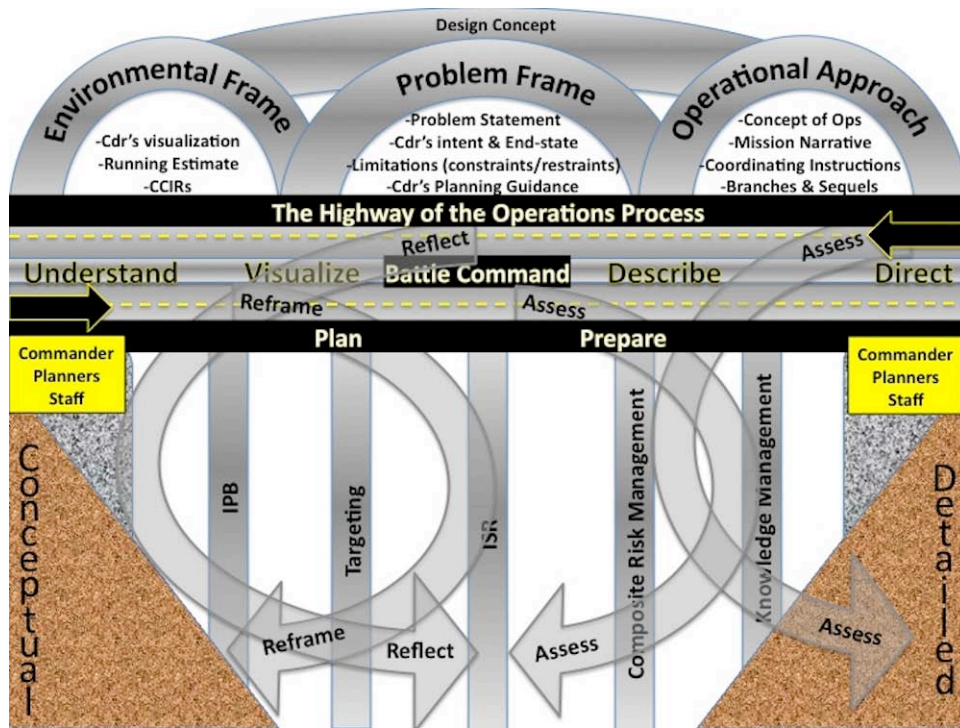
Figure 2. Conceptual to Detailed Planning Tri-arch Truss Bridge[30]

In Figure 2, the weight-bearing structures (trusses) for each arch are listed within the

three frames of Army design. These trusses include various elements that already exist within

both Army design and MDMP.[31] Most important to the bridge's structural integrity, these trusses

are strengthened by the pylons of five integrating processes briefly mentioned in the 2010 *FM 5-*

0. These pylons further distribute the weight put upon the metaphorical planning bridge.[32]

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[30] This figure and further similar figures are constructs of the author.

[31] While there are many places to connect conceptual to detailed planning, the most important to further recognize include running estimates, information requirements and the commander's critical information requirements (CCIR), target identification, the problem statement, the commander's planning guidance, intent, and end-state, the concept of the operation, mission narrative, coordinating instructions, branch and sequel possibilities, and assessment measures. While some of these subordinate items are already made explicit in doctrine, the relationship between conceptual and detailed planning would benefit from a more coherent explanation.

[32] This hypothesis is derived from various sources, but the primary three sources that lead the author to believe these are valid connections are *U.S. Army FM 3-0 2008; U.S. Army FM 5-0 2010*; and the author's personal planning experiences in 14 years of Army tactical and operational experience, the Command and General Staff College, and School of Advanced Military Studies

There are three simple but detailed steps to building a bridge: first, to understand the characteristics of the gap; second, to identify the materials necessary to construct the bridge; and lastly, after constructing the bridge, it must be tested. As mentioned, the first step to successfully spanning the gap is to understand the intrinsic characteristics of the two sides to be connected. The abutments are the foundation of any bridge and rely heavily on understanding of these characteristics. For the purpose of this metaphor, the abutments are the leadership: the commander, the planners, and the staff. The bridge begins on one side with leadership's recognition of a problem and the methodical generation of approaches to problem resolution. This team of leaders provides the foundation for both design and construction. As seen previously in Figure 2, the bridging effort requires that the bridge designer-builders be involved in every step of the planning and construction process.

The second step in bridging the planning gap is identifying the appropriate materials to construct the trusses necessary to link the conceptual and detailed planning sides of the gap. These trusses represent the linkages between conceptual and detailed planning which need to be made more explicit in doctrine. There are many different materials and linkages that can go into building the bridge, but only the strongest, most sensible ones should be identified for use. The best place to begin to recognize the possible linkages between conceptual and detailed military decision-making is through historical example. Carl von Clausewitz has masterfully demonstrated this in his work, *On War*.[33] In the words of Clausewitz, "Historical examples clarify everything and provide the best kind of proof in the empirical sciences...particularly true [in] the art of

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educational experiences. The five integrating processes outlined in doctrine are: intelligence preparation of the battlefield (IPB); an integrated intelligence, surveillance, and reconnaissance (ISR) plan; the targeting process; composite risk management; and knowledge management. Additionally, there are seven continuing activities which also prove important and they are intelligence, surveillance, and reconnaissance; security operations; protection; liaison and coordination; terrain management; information management; and airspace command and control.

[33] Clausewitz, *On War*, 156.

war."[34] Throughout this monograph, historical examples will often be used to support the identification of important linkages between Army conceptual and detailed planning.

Lastly, testing the bridge's strength is the most critical measure in bridge construction. In the case of bridging the planning gap, identified linkages, the abutments, the roadway, the ramps on and off, the pylons, and the three arches must all undergo a rigorous critical analysis to evaluate their efficacy. This evaluation will provide insightful conclusions as well as recommendations to improve the current bridge's capacity through further research and testing. Each of the linkages to be discussed should be able to demonstrate its suitability as a linkage between the conceptual and detailed planning. Conversely, a weak linkage can be identified as one that could easily be removed without detriment to the bridge. Thus, through analysis, a linkage should prove its own worth to the overall structure.

Four essential criteria will be used to evaluate the strength of the bridge built in this study: a clearly articulated relationship between the conceptual and the detailed; synchronization and synergy between Army planning processes; a common lexicon; and lastly, an increase in the efficacy of the operations process. Through critical analysis of each element of the bridge and direct evidence from practical and historical accounts, the four criteria will be applied to evaluate the efficacy of each linkage.

First, the linkages of the bridge should provide a clearly articulated relationship between conceptual planning (Army design) and detailed planning (MDMP) at any echelon. For example, one explicit linkage in doctrine is the commander's guidance. The commander's planning guidance is described in *FM 5-0* as an output of the design process in the final design concept. This planning guidance is also the starting point of MDMP and thus a shared element between conceptual and detailed Army planning. It is possible from this to determine an effective one-way

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[34] Clausewitz, *On War*, 170.

linkage from conceptual to detailed planning. Further, from this analysis, one can use the remaining three essential criteria to weigh the relative importance and effectiveness of this particular linkage. History should provide the bedrock from which to further support the validity of any asserted linkages.

Second, these linkages should provide a general synchronization and synergism between Army planning processes. Simply put, a linkage should provide continuity. Some continuity may be unidirectional, while other continuity may be bidirectional. Using the previous example, commander's guidance produces both synchronization and synergism between conceptual and detailed planning activities; it both informs the conceptual as well as drives the detailed planning, and this bidirectional nature is a critical aspect for a linkage to be truly effective.

Third, these linkages should use a common lexicon that is easily accessible by all who wish to apply both conceptual planning and detailed military decision-making. It is imperative that words mean the same thing when translated from one realm to the next; a linkage must express ideas in the same terms to ensure successful translation. To use a different example, the importance of the common lexicon can be seen in conceptual planning's efforts to use nebulous or imprecise terms such as "partner." Such a term could have a vast array of meanings, all of which may entail distinct tactical and strategic consequences.[35] Non-doctrinal terms prove problematic if brought from conceptual to detailed planning, because there is no commonly understood task, or no method for achieving these terms, and they invariably bear unintended consequences. Variations in terms between planning activities can produce confusion and make common term linkages inefficient and costly if not deliberately avoided.

Lastly, the linkages that connect conceptual planning and detailed military decision-making should make the plan-prepare-execute-assess operations process more effective.

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[35] Michael D. Mason, "Words are weapons…so use them wisely," *Military Review*, Volume LXXXII, No. 5 (Sep-Oct 2007): 136-7.

Merriam-Webster defines effective as "producing a decided, decisive, or desired effect." In military terms, to be more effective means attaining that decided, decisive, and desired effect more quickly than the enemy while denying the enemy the same. As chapter two of *U.S. Army Field Manual 5-0 The Operations Process March 2010* points out, planning should help Army forces to "anticipate events and adapt to changing circumstances," as well as "direct, coordinate, and synchronize action." This is chief of the essential criteria, and while difficult to judge, historical examples should provide some insight to how effective a linkage may or may not prove to be.

In summary, the Minnesota bridge tragedy occurred because bridge-designers were separated from the bridge-builders. The conceptual bridge did not match the demands of the detailed world, and because the designer was separated from his creation, it failed catastrophically. The Army, focused on complexity and uncertainty, has refined doctrine to emphasize the importance of conceptual planning, in the form of design. However, while doctrine recognizes the importance of conceptual and detailed planning, it does not adequately connect the two components for practical purposes. To begin to reconnect conceptual and detailed planning, the metaphor of a bridge will be used throughout the breadth of this monograph to describe several of the necessary linkages that must be formed to effectively gain the adaptive, agile planning doctrine the Army desires. These linkages will be evaluated using four criteria: clearly articulated relations between the conceptual and the detailed; synchronization and synergy between Army planning processes; a common lexicon; and lastly, an increase in the efficacy of the operations process. In addition, historical examples will be used as necessary to support the identification of a linkage. This will ensure the viability of the bridge built to link conceptual and detailed planning. To begin exploration, one must first understand in greater detail what has already been named the planning gap, including the character of both the conceptual and detailed planning sides of this gap.

Defining the Gap

In order to build the best bridge possible, intimate familiarity with the nature of both sides of the gap is required. In this specific case of the planning gap, it is prudent to explore the origins of conceptual and detailed planning, as they currently exist in doctrine. This information helps identify the proper materials and most effective bridge to span the planning gap.

Planning, as defined in doctrine, is "the process by which commanders (and the staff, if available) translate the commander's visualization into a specific course of action for preparation and execution, focusing on the expected results."[36] The question arises then, from where does a plan develop? There are two answers to this question. The first answer is that planning begins at the receipt of a mission. The second answer to this question, in the absence of a clear mission, is that planning begins when a problem is recognized. In the latter answer, problem recognition occurs cognitively. A natural gap forms from the point of initial problem identification to interaction with the problem. This gap between a plan's conception and execution must be bridged. The gap is only widened when an explicit separation between conceptual and detailed planning in injected as LTG Vane alluded to in the introduction. Iterative design was produced as a cognitive tool to help commanders understand the environment, the problem, and possible solutions more thoroughly. The military decision-making process effectively analyzes a mission and produces actionable products for precise military execution. Neither methodology effectively does well what the other can, and effort must be put toward bridging the translation gap that exists between the two. The planning gap expands when balance, understanding, and activities are skewed too far in one direction or the other. The planning gap shortens when linkages are intrinsically understood and the conceptual and detailed planning activities become so quick to adapt, act upon, and adjust to each other that they seem as one continuous organizational learning

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[36] U.S. Army, *FM 5-0 2010*, 2-6 thru 2-7.

activity. In order to better understand each side of the planning gap, it is beneficial to explore the historical origins of both the conceptual and detailed planning sides of the planning gap.

The Origins of Conceptual Design: Exploring Systemic Operational Design

With over two centuries' experience in war and global instabilities, the United States Army has learned that the world is a very complex place. As such, the Army has constantly adapted in an attempt to meet the requirements of the complex environment. Since its strategically indecisive performance in Viet Nam, the United States Army has been determined to find an adequate doctrinal planning template that provides for an adaptive and agile force to meet the demands of today's operational complexities. In attempts to reconcile the Army's perceived post-Desert Storm incapacity, methodologies such as Effects Based Operations Approach (EBOA), Systems of Systems Approach (SoSA), and Systemic Operational Design (SOD) were tested.[37] In dealing with the unfamiliar challenges of 9/11 and the Global War on Terror, Army leadership claimed that the analytic, linear-stepped approach of the military decision-making process might not be adequate to address "wicked" or "ill-defined" problems.[38] SOD, a methodology engineered by Israeli Reserve Brigadier General Dr. Shimon Naveh for the Israeli Defense Forces (IDF), shares some of the same fundamental theory as the current concept of Army design. In early 2006, Israeli Defense Forces rejected the use of SOD for EBOA and

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[37] Brigadier General (Ret.) Huba Wass de Czege, "Systemic Operational Design: Learning and Adapting in Complex Missions," *Military Review*, Volume LXXXIX, No. 1, (January-February 2009): 2-12. Wass de Czege provides a very well researched and articulate discussion on the emergence of Army's incorporation of design.

[38] Horst W.L Rittel and Melvin M.Webber, "Dilemmas in the General Theory of Planning," *Policy Sciences*, Issue 4, (August, 1973): 161. The terms "wicked" and "ill-defined" are two lifted terms carried forward from Wittel and Webber's 1970's General Theory of Planning. The understanding of problem classification was part of the epistemology from which Army design was built.

SoSA.[39] Regardless of SOD's rejection, the United States continued to leverage much of the theory behind SOD to formulate its own concept of design.[40] For this reason, it is important to understand the basic principles that comprise SOD.

As a professor of operations at the U.S. Naval War College, Milan Vego points out that SOD finds its roots in "systems theory, Soviet operational art, French postmodern philosophy, social sciences, psychology, architecture, urban planning, and…ancient Chinese military thinking."[41] Richard M. Swain, a retired Army colonel and professional military consultant, describes SOD's focus on systems framing in his concise account of operational design.[42] SOD's foundation originates from general systems theory, which was first explained by the Austrian biologist Ludwig von Bertalanffy.[43] The introduction of general systems theory in SOD provides the pivotal point about which Dr. Naveh separates design from planning.[44] This dangerous distinction that SOD makes between design activities and planning provides some valuable insight into the possible origins of the planning gap that has developed in U.S. Army doctrine. According to Dr. Naveh, Operational Design is about "Sense-making" and "synthesis," while

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[39] Wass de Czege, "Systemic Operational Design," 3-4.

[40] Adam Elkus and Crispin Burke, "Operational Design: Promise and Problems," *Small Wars Journal* (February 9, 2010): 2, http://smallwarsjournal.com/blog/journal/docs-temp/362-elkus.pdf (accessed 01 March 2011), and Cardon and Leonard, "Unleashing Design," 2-3.

[41]Milan N. Vego, "A Case Against Systemic Operational Design," *Joint Forces Quarterly*, Issue 53, (2nd Quarter, 2009): 70

[42] Richard M. Swain, "Commander's Business: Learning to Practice Operational Design," *Joint Forces Quarterly*, Issue 53, (2nd Quarter, 2009): 61-68. Swain provides a comprehensive description of SOD.

[43]Vego, "Case Against Systemic Operational Design," 70; Shimon Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory*, (New York, NY: Frank Cass Publishers, 1997), 3. As both Vego and Naveh point out, Von Bertalanffy's work general systems work provides the scientific theoretical foundation for SOD.

[44] To understand SOD as a way of synthetic sense-making and organizational learning requires a paradigm shift from most current views of conceptual planning or even intuitive decision-making; it becomes more a method of open system interaction than a planning method. Army's design concept is arguably a planning model, though it maintains some aspects of Systemic Operational Design.

planning is about "action" and "analysis." [45] While it may make sense to separate the two

activities to develop an understanding of each in academic isolation, in military practice this can

have dire consequences. The primary reason SOD was rejected by the IDF in 2006 was because

so many officers and soldiers did not understand the broad lexicon of new and confusing terms

that EBO and SOD brought to the operational environment. [46] It is worth noting that while Army

design appears different than SOD in form and process, its fundamental goals are the same: to

understand and influence complex problems. Fortunately, the U.S. Army recognized IDF's

operational problems with EBO and SOD while fighting in Lebanon in 2006. [47] The Army's

current design model, which integrates several of the foundational concepts of SOD, has lost

much of the confusing novel terminology that made it so difficult for the IDF. While Army

design has become a more user-friendly method in this way, the danger of a widened planning

gap still exists.

If one takes away nothing else, it must be understood that all things are not equal when

talking generally about design, and Army design is not the same as SOD or even operational

design, to date. Without regurgitating all of chapter 3 in the 2010 *FM 5-0*, it would be negligent

to not briefly discuss Army design before exploring the origins of detailed planning. Army

design, according to the 2010 *FM 5-0* is "a methodology for applying critical and creative

thinking to understand, visualize, and describe complex, ill-structured problems and develop

approaches to solve them." [48] As depicted in Figure 3, the design methodology includes three

cognitive spaces that allow the practitioner to gain a more comprehensive understanding of the

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[45] Shimon Naveh, "Operational Art, Operational Command, Systemic Operational Design," Powerpoint slide presentation given at Fort Leavenworth, 2007, Unified Quest 2007, http://www.slideshare.net/ubiwar/shimon-naveh-powerpoint (accessed 2 February 2011)

[46] Matt Matthews, *We Were Caught Unprepared: The 2006 Hezbollah-Israeli War*, *Occasional Paper 26,* (Fort Leavenworth, KS: Combat Studies Institute Press, 2008), 25-28.

[47] Ibid.

[48] U.S. Army, *FM 5-0 2010*, Glossary-4.

problem. Those familiar with the theory and doctrine of design might explain that the beauty of

design is that there is no exacting order for moving between the three cognitive realms.
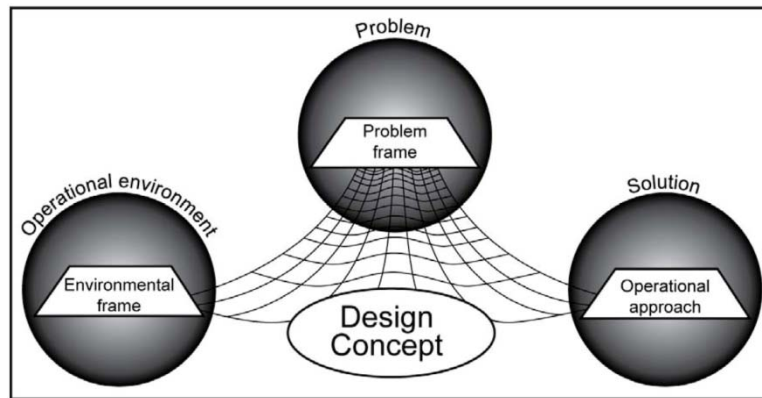
Figure 3. The Design Methodology.[49]

Design's environmental frame doctrinally consists of a graphic and a narrative that

provides a holistic view of the environment, the actors, and their key relationships to one another.

Central to environmental understanding is the spatial, temporal, and objective orientations of the

actors within the strategic context.[50] Also a graphic and a narrative, the problem frame sharpens

the differences that exist between the current and desired states. It should also show the tensions,

potentials, and opportunities that exist within the current state. Given the time, an iterative

development of understanding between the environmental frame and problem frame allows the

designer to create an operational approach that includes a third graphic depiction and a mission

narrative. The design concept, as the holistic final product is called, allegedly allows for the

seamless transition to detailed planning. The three cognitive frames are said to exist

simultaneously and are not necessarily developed in any lock-step process.[51] While this may truly

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[49] U.S. Army, *FM 5-0 2010*, 3-7.

[50] Colin S. Gray, *War, Peace, and International Relations: Introduction to Strategic History* (New York, NY: Routledge, 2007), 9-12. See note 92 for details about strategic context.

[51] U.S. Army, *FM 5-0 2010*, 3-1 to 3-13.

be the case when cognitive activities are being performed, a deeper understanding of linkages

should provide a better way to articulate the relationship between the abstract nature of

conceptual planning and detailed military planning.

In summary, Army design attempts to provide the commander with a cognitive tool that

helps to explore the nature of a problem in creative and innovative ways in order to generate

solutions to the problem. Much like SOD, Army design attempts to provide a non-prescriptive

general systems approach to military operations, but without the introduction of much of the

theory and terminology that is characteristic of SOD. A problem that has emerged in the

evolution of design is the artificial separation of conceptual and detailed planning activities. If

these actions are conducted in isolation, there is a danger that detailed planning will lose much of

the understanding developed in the design process. The planning process should be a holistic,

blended effort of conceptual and detailed planning. To better understand this necessity, one must

first understand the evolution of the Army's detailed planning process, MDMP.

The Origins of MDMP: Intuitive Command versus Detailed Planning

In gaining an understanding of the latest developments in military planning, one must

recognize the long historical evolution of military decision-making in the Army. Military

decision-making has been a critical focus of the military artist for centuries. The formative history

of military decision-making can be drawn back to the classical Prussian doctrine of the 1800's.

For the purpose of this monograph, the United States first introduced a formal method of military

decision-making called the Estimate of the Situation in the early 1900's. In the 1940's, the

estimate form evolved into a process of deciding between lines of action, which today would be

known as courses of action. Interestingly to note, during this time the division and below

commander would conduct this estimate mentally, often without any written order.

As time went on, a focus on military problem solving and decision-making continued.

Capturing lessons learned in the midst of Vietnam, the 1968 U.S. Army Field Manual 101-5, *Staff*

Officer's Field Manual: Staff Organization and Procedure, "established problem-solving as the

bedrock of Army doctrine." Through the 1970's, 1980's, and 1990's, the Army amended and

refined the decision-making process to adapt to the complexity of the time.[52] Even today, the

Army has yet to identify the optimal problem-solving techniques to produce the desired balance

of conceptual and detailed planning. While its name has changed over the years, Field Manual 5-

0 has become the chief resource for problem-solving doctrine. Unfortunately, the Army's efforts

to balance thought with precision and efficiency with efficacy has only expanded the planning

gap between conceptual and detailed planning.[53]

Though there exists over 100 years of formal decision-making technique in Army

doctrine, the military decision-making seven-step process as it is known today was first published

in the 1997 *Field Manual 101-5 Staff Officer's Field Manual: Staff Organization and Procedure*.

Little about the MDMP has changed since the 1997 publication. The most recent field manual

provides substantial detail regarding how MDMP should be applied in proper planning. Figure 4

most accurately depicts the steps of MDMP.

Upon receipt of mission, the commander and staff gather the necessary tools, inform

subordinates of a received mission by way of a warning order, and begin to conduct mission

analysis. From this analysis, the commander, his planners, and staff develop feasible, acceptable,

suitable, distinct, and complete courses of action to accomplish the mission. In conjunction with

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[52] Major Thomas H. Cowan, Jr., " A Single Flexible, Rigorous Decision Making Process," (Monograph, Fort Leavenworth, KS: School of Advanced Military Studies, 1996),

[53] Clark, "Army Planning Doctrine," 70-72*;* Marr, "Military Decision Making Process," 11-12; Timothy K. Nenninger, *The Leavenworth Schools and the Old Army: Education, Professionalism, and the Officer Corps of the United States Army, 1881-1918*, (Westport, Connecticut: Greenwood Press, 1978), 36-50; and Colonel Chris Paparone, "US Army Decision-making: Past, Present, and Future," *Military Review*, Volume LXXXI, No. 4, (July-August 2001): 45-53. These sources provide a good compilation of the long, distinguished history of military decision-making and Army problem-solving. Further research shows that it may have begun as early as 1890, when Leavenworth faculty focused its efforts on new and original thinking, and COL Paparone traces military decision-making back to the German Von Moltke in the latter 19th century.

this process, necessary planning information flows through subsequent warning and operations orders for subordinate unit parallel planning efforts. This process as depicted in figure 4 focuses heavily on visualizing, describing, and directing military actions.[54]

Key inputs	Steps	Key outputs
• Higher headquarters' plan or order or a new mission anticipated by the commander	Step 1: Receipt of Mission	• Commander's initial guidance • Initial allocation of time
	Warning order	
• Higher headquarters' plan or order • Higher headquarters' knowledge and intelligence products • Knowledge products from other organizations • Design concept (if developed)	Step 2: Mission Analysis	• Mission statement • Initial commander's intent • Initial planning guidance • Initial CCIRs and EEFIs • Updated IPB and running estimates • Assumptions
	Warning order	

• Mission statement
• Initial commander's intent, planning guidance, CCIRs, and EEFIs
• Updated IPB and running estimates
• Assumptions
	Step 3: Course of Action (COA) Development	• COA statements and sketches
		  - Tentative task organization
		  - Broad concept of operations
		• Revised planning guidance
		• Updated assumptions

• Updated running estimates • Revised planning guidance • COA statements and sketches • Updated assumptions	Step 4: COA Analysis (War Game)	• Refined COAs • Potential decision points • War-game results • Initial assessment measures • Updated assumptions
• Updated running estimates • Refined COAs • Evaluation criteria • War-game results • Updated assumptions	Step 5: COA Comparison	• Evaluated COAs • Recommended COAs • Updated running estimates • Updated assumptions
• Updated running estimates • Evaluated COAs • Recommended COA • Updated assumptions	Step 6: COA Approval	• Commander-selected COA and any modifications • Refined commander's intent, CCIRs, and EEFIs • Updated assumptions
	Warning order	
• Commander-selected COA with any modifications • Refined commander's intent, CCIRs, and EEFIs • Updated assumptions	Step 7: Orders Production	• Approved operation plan or order

CCIR   commander's critical information requirement   EEFI   essential element of friendly information
COA   course of action   IPB   intelligence preparation of the battlefield

Figure 4. The Military Decision-Making Seven-Step Process[55]

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[54] U.S. Army, *FM 5-0 2010*, B-1 to B-39.

LTG Vane's quotation in the introduction shows senior Army leader concern that an analytic process such as MDMP is insufficient to cope with today's complex problems. If MDMP is insufficient in dealing with complex problems, a subsequent question arises. What does Army design provide that MDMP does not? As mentioned previously, purely conceptual plans without actionable task and purpose are as useless and harmful as precisely actionable plans that solve the wrong problem or make the situation worse. The intent of emphasizing conceptual planning through design was to spend the proper critical and creative thinking power in identifying the right problem, and to propose appropriate solutions to move forward in detailed planning.[56]

The emphasis on conceptual planning brought with it many unintended consequences. In a 2011 article written by the Director of the School of Advanced Military Studies, we see that design was not intended to create a "mutual exclusivity" between design and military decision-making, nor to create rifts in staffs over planning methods, nor was it intended or capable of replacing the MDMP.[57] Design's introduction sought to secure the learning that transpired from eight years of combat. In Iraq, the problems faced in 2003 were claimed to be far too complex and ill structured for MDMP alone. Design would provide commanders and staffs another tool that could help them think critically and creatively about the problem.[58] If misapplied, this

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[55] U.S. Army, *FM 5-0 2010,* B-3.

[56]Cardon and Leonard, "Unleashing Design," 6-7.

[57] Colonel Wayne W. Grisgby, Jr, Dr. Scott Gorman, Colonel Jack Marr, Lieutenant Colonel Joseph McLamb, Dr. Michael Stewart, and Dr. Pete Schifferle, "Integrated Planning: The Operations Process, Design, and the Military Decision Making Process," *Military Review*, Volume XCI, No. 1, (January-February 2011): 28-35. Colonel Grigbsy, et al., identify five myths that exist about design: First, the design methodology and planning are two mutually exclusive options for military decision making; second, the design methodology is for complex, ill-structured problems, and the MDMP is for other types of problems; third, The design methodology is for the talented few; the MDMDP is for the rest of us; fourth, we plan for certainty; we design for uncertainty; and fifth, using design methodology will make sure we solve the right problem correctly.

[58] U.S. Army, *FM 5-0 2010*, 3-3.

emphasis on conceptual planning will not identify or solve the military problem any more correctly than MDMP; it will only elongate an ineffective process.

While there exists potential for further doctrinal refinement, the Army has made substantial progress in articulating a useful methodology for conceptual planning. In the 2010 *Field Manual 5-0*, conceptual planning is linked to detailed planning "before, in parallel with, or after the MDMP," and "underpins the exercise of battle command."[59] Doctrine establishes an inherent relationship between battle command, MDMP, and design. The commander is the unifying figure to all three of these doctrinal concepts. To further tie these models and processes together, some linkages were made explicit. Examples of explicit linkages between the military decision-making process and the design methodology are the problem statement, commander's initial planning guidance, commander's intent, and mission narrative.[60] However, the few linkages highlighted in doctrine are not sufficient to create the adaptive planning process the Army intended. In order for conceptual and detailed planning to maintain a two-way, fluid, and dynamic relationship, it requires a rigorous exploration that begins in professional scrutiny. The improved planning relationship then becomes refined through practice and application.

Like the U.S. Army, other professions experience similar integration challenges as they attempt to bridge the gap between conceptual formulation, detailed planning, and effective execution. In corporate America and technical communities where the art of design is implemented, there is often a similar gap between conceptual design planning and detailed planning activities. Roger Martin, a leading business strategist and Dean of the Rotman School of Management at the University of Toronto, recognizes a formal need for balance between abductive reasoning (design activities) and the activities of inductive and deductive reasoning (the

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[59] U.S. Army, *FM 5-0 2010*, 2-8, 3-1.

[60] Ibid, 2-7.

detailed planning activities of MDMP).[61] From this, it can be inferred that the outcome of doing either excessively well, to the exclusion of the other, is catastrophic failure for many businesses. This recognition in the business community is equivalent to what Army leadership has recognized in the application of the analytic and deductive MDMP process. It appears that in order to be effective, any dynamic organization must build a bridge across the divide that exists between conceptual and detailed planning. Imbalanced activity in either realm reduces the organization's ability to solve complex problems consistently and may even lead to organizational destruction.[62]

There is one additional reason it is imperative to bridge the gap between conceptual and detailed planning. The *U.S. Army Field Manual 5-0 Operations March 2010* expresses that, "detailed planning translates the broad operational approach into a complete and practical plan," and that the military decision-making process "proceeds with the production of a fully synchronized plan or order of execution."[63] As long as orders derived from detailed planning are the method used to articulate task and purpose to Soldiers, there must be rugged linkages that clearly bridge the gap between the conceptual and detailed planning. The linkages that allow this relationship to exist must be made explicit to help put doctrine's conceptual guide into practical action and help the Army further develop the relationship between conceptual and detailed.

The planning gap between the conceptual planning and detailed planning should now be seen for what it is: the natural gap that will always exist between planning and execution,

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[61] Roger L. Martin, *The Design of Business.* (Boston, MA: Harvard Business Press, 2009), 62-67. The goal is to strive for balance in the bridge between the conceptual and detailed. Abductive reasoning is a term first coined by Charles Sanders Peirce, a little-known nineteenth century American philosopher. What it implies is an educated guessing, or the formulation of multiple hypotheses, in order to more precisely understand the actual problem; it is the proposal of what could be. Deductive reasoning is the logic of what must be, reasons from the general to specific. Inductive reasoning is the logic of what is operative; reasons from the specific to general. Often our analytic processes are too heavily rooted in the inductive or deductive skill-sets.

[62] U.S. Army, *FM 5-0 2010*, 5-7.

[63] Ibid, 2-6, 2-8.

widened by the doctrinal separation of conceptual and detailed planning activities. This issue should be more distressing than ever to the Army. As corps and division headquarters continue to be in charge of directing modular brigade combat teams, but rarely maintain an organizational relationship with the brigades they command and control, it is essential to know what the effective linkages are between the conceptual planning and detailed planning. A failure to link a division's or corps' understanding and visualization of a complex problem to the detailed execution of the plan will lead to catastrophic failure for the brigade combat teams employed by them. The planning gap becomes most evident when concepts, orders, and actions fail in light of a seemingly good plan. Peter W. Galbraith mentions one recent demonstration of the planning gap in his book, *Unintended Consequences: How War in Iraq Strengthened America's Enemies*. Galbraith explains that President George W. Bush did not provide policy that matched his rhetoric. Galbraith contends that the U.S. could only have established the proper foundation for conceptual planning if the President's policy had matched his narrative. Because, from Galbraith's point of view, President Bush failed to do this, the military detailed planning that ensued produced significant unintended consequences that have actually worsened the global problem.[64]

In summary, the military decision-making process is rich in historic evolution. Though it has become more prescriptive in its form, MDMP's ability to assist the commander and staff in visualizing, describing, directing, and assessing has only grown stronger with time. Unfortunately, the planning gap that exists between conceptual and detailed planning has also grown with time. It falls squarely on the practitioner to figure out the most expeditious way to bridge the planning gap. However, with a basic understanding of the planning gap, and further established methods for bridging the gap, one can move forward in physically building a bridge.

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[64] Peter W. Galbraith, *Unintended Consequences: How War in Iraq Strengthened America's Enemies*, (New York: Simon & Schuster, 2008), 7-13.

Building the Tri-arch Truss Bridge

In order to bridge the planning gap, one must first identify the most fluid means of getting to and from the bridge. In this case, the super-highway that connects conceptual to the detailed consists of two major processes: the operations process and battle command. Figure 5 demonstrates the relationship between these two doctrinal concepts.
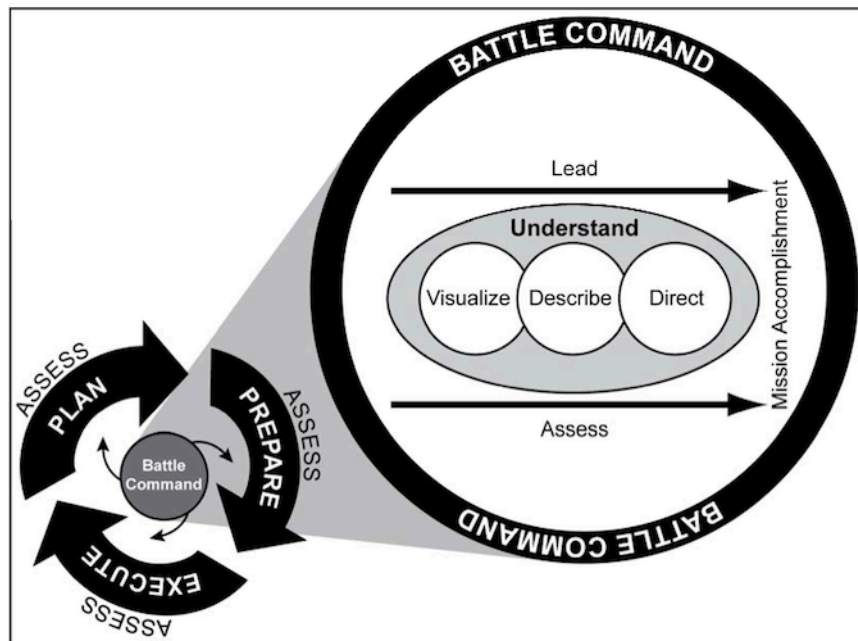
Figure 5. The Operations Process and Battle Command.[65]

First of all, the backdrop for all planning activities as highlighted in doctrine is called the operations process. The operations process is often non-linear, may act in a simultaneous or sequential manner, and is the current model for the exercise of the Army's command and control (C2). The operations process is comprised of four C2 functions: planning, preparing, executing, and continually assessing the operation. Functionality of the operations process lies in the sequential, simultaneous, and collaborative nature of activities.

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[65] U.S. *FM 5-0 2010*, 1-9.

Secondly, at the heart of these operations activities is battle command. Battle command is "the art and science of understanding, visualizing, describing, directing, leading, and assessing forces to impose the commander's will on a hostile, thinking, and adaptive enemy. Battle command applies leadership to translate decisions into actions—by synchronizing forces and warfighting functions in time, space, and purpose—to accomplish missions."[66]

In the context of the operations process and battle command, Army design is articulated as conceptual planning which helps the commander better "understand, visualize, and describe."[67] Additionally, the MDMP "also helps the commander visualize, describe, and direct."[68] Figure 6 visually depicts the conceptual elements of battle command:
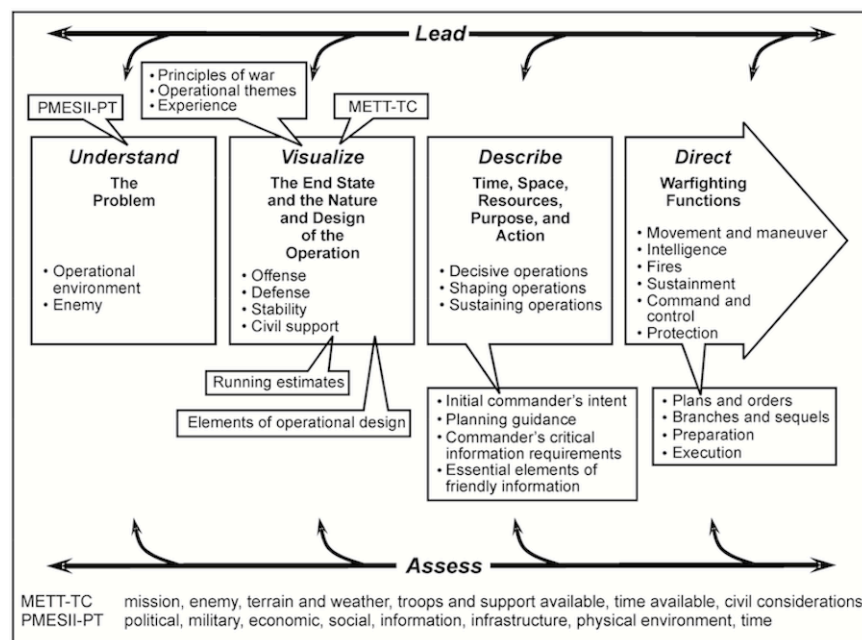
Figure 6. Details of Battle Command. [69]

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[66] U.S. Army, *FM 3-0 2008*, 5-2.

[67] Ibid, 3-1.

[68] Ibid, B-1.

[69] Ibid, 5-3.

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One should notice that MDMP provides the decision and direction necessary to prepare and execute the commander's conceptual plans.

To demonstrate the relationship of the operations process and battle command to the bridge between conceptual and detailed sides of the gap, it proves most beneficial to visualize a multi-lane, two-way highway. The depiction in Fig. 7 shows these key elements in context.
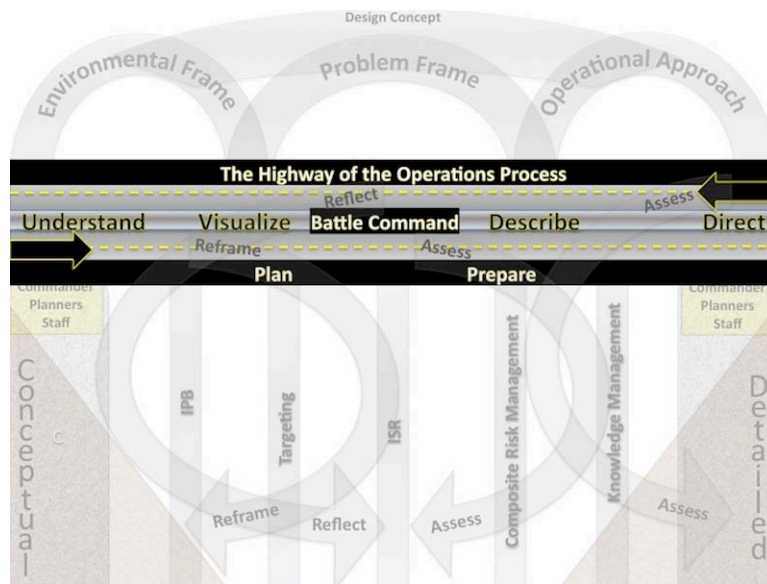
Figure 7. The Highway of the Operations Process, Battle Command

This super-highway provides multiple on-ramps and off-ramps that provide entrance and exit points in and out of the conceptual and detailed realms. This aspect demonstrates the non-linear nature of planning and the inherent necessity of conceptual and detailed planning to be interconnected as seamlessly as possible.[70]

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[70]It is the author's unproven hypothesis that the inherent non-linearity of war has become overemphasized: time makes all things, in some regard, linear. Paralysis of planning efforts occurs when a process to move forward is uncertain. For this reason, checklists and some level of prescription pay in reducing the time it takes to plan and accomplish a task. Essential to taking advantage of time's natural constraint is the ability to learn and adapt more quickly than the enemy through proper feedback loops (assessment, reflection, and reframing). This does not alleviate every situation from being treated in its own context and unique solution.

In analysis, battle command and the operations process provide the conduit for discourse between conceptual and detailed planning. The four criteria for analysis of these processes as a link between conceptual and detailed planning are: a clearly articulated relationship between the conceptual and detailed; synchronization and synergy between Army planning processes; a common lexicon; and an increase in the efficacy of the operations process. There is already an explicit relationship between the two doctrinal concepts of battle command and the operations process. Secondly, there already exists a robust lexicon that revolves around military operations. Both concepts if applied, provide an ability to synchronize conceptual and detailed planning efforts when those responsible understand how to integrate the two. The one aspect that currently is lacking in battle command and the operations process is increased efficacy. In practice, because Army design is separated from detailed planning, time and effort is often wasted in the process as it stands now.[71]

In summary, the operations process and battle command provide the necessary road structure to move from conceptual to detailed planning, and vice versa. It is essential to understand the relationship between the operations process and battle command, and their relationship to planning. In this analysis, one will find an explicit relationship in doctrine, a robust and understood lexicon, and synergy, but current doctrine fails to prove optimally effective. In a search to improve the efficacy of the relationship between the operations process, battle command, and planning, there are some additional helpful tools already expressed in doctrine that are worthy of exploration.

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[71] This analysis is based on the author's practical experience in applying current doctrine in several planning training exercises at the School of Advanced Military Studies, in AY 11-01.

The Pillars of Five Integrating Activities: Reducing Dangers of Resonance

In building the bridge between the conceptual and detailed planning realms, pylons provide the necessary support structure. In doctrine's blueprint, these pylons are represented by five integrating functions: intelligence preparation of the battlefield; targeting; intelligence, surveillance, and reconnaissance synchronization; composite risk management; and knowledge management. These are visually depicted in the bridge blueprint in Figure 8.
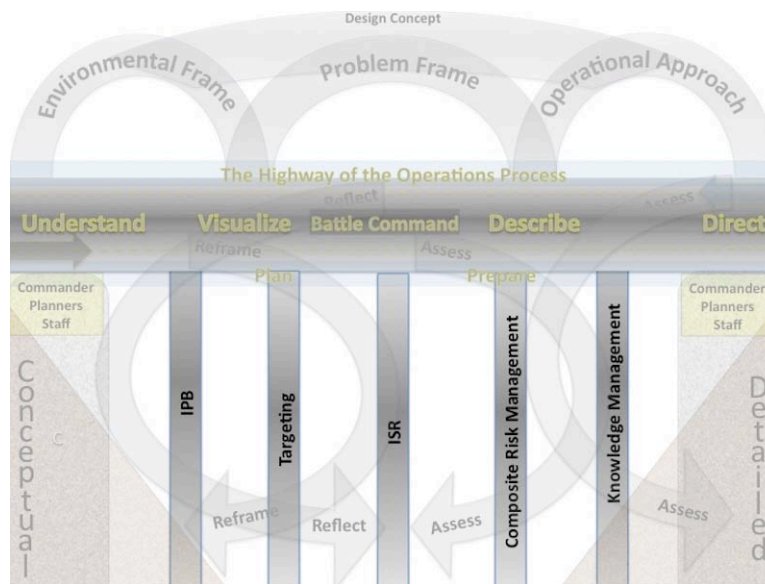
Figure 8. The Pylons of Support: Five Integrating Processes

While intelligence preparation of the battlefield (IPB) is one of two explicit linkages doctrinally described in "Design and the MDMP Interface," the explanation of this relationship is superficial and does not highlight the importance of this integrated analytic staff product.[72] IPB provides the depth in understanding and continuity necessary to link conceptual and detailed planning. It is one of five integrating processes that are the continuous activities "commanders and staffs [use to] synchronize the war fighting functions in accordance with the commander's intent and

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[72] U.S. Army, *FM 5-0 2010*, 2-8.

concept of the operations."[73] As such, IPB was intended to be a comprehensive staff function—every warfighting function has its piece of subject matter expertise that should inform IPB. IPB should be a collective knowledge event that begins in the conceptual planning realm and is iteratively built upon throughout the planning process. If some attention was given to this and the other five integrating processes in supporting doctrine, conceptual planning may very well find itself more naturally nested in the operations process.

Failures in IPB have proven to be the unraveling of many an operation. One prime example of such an event is highlighted in the historical incident regarding the Viet Cong Order of Battle controversy of 1967.[74] The conflict over Viet Cong numerical strength was a constant tension throughout this period. The body count increased U.S. uncertainty as it continued to escalate well beyond the original projected numbers of Viet Cong. This gave many politicians and the American population a sense that they were continuing to lose a war they could not win. Two major flaws in IPB become apparent: a failure to update IPB was further complicated by a vague assessment process. There is a feedback relationship that should exist between the IPB and the battle analysis and assessment processes, which must be thought out early in the stages of understanding the environment and its actors. This Vietnam example, though dated, provides the necessary understanding to recognize the importance of updated and timely IPB to inform both conceptual and detailed planning efforts.

In any conflict, the most important interaction with the environment—short of direct engagement with the enemy—comes from intelligence, surveillance, and reconnaissance (ISR). These three aspects are critical to developing understanding of what the enemy has done to

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[73] U.S. Army, *FM 5-0 2010,* 1-12.

[74] United States Joint Forces Command, "Pamphlet 10: Design in Military Operations, A Primer for Joint Warfighters," on the Joint Electronic Library under "Doctrine: JWFC Pamphlets, Handbooks" "http://www.dtic.mil/doctrine/doctrine/jwfc/jwfcpam10.pdf. The Viet Cong vignette is one of several that are used to demonstrate success and failures in conceptual planning.

position himself, what the enemy is currently doing, and what the enemy is doing to prepare himself for future operations. ISR allows an organization to begin to see what it doesn't know which aids in developing understanding. This, along with the intelligence preparation of the battlefield, is one of the five integrating processes mentioned in the 2010 *FM 5-0*.[75] The commander should be emphatic in ensuring ISR is planned for continuously throughout the operations process.[76] Additionally, ISR is crucial in answering some of the information requirements that come from conceptual planning efforts.

John Boyd, a respected military theorist, contends that the ability to observe, orient, decide, and act upon the enemy prior to his knowledge or ability to do the same produces the ability to survive and dominate.[77] In an age where intelligence collection methods proliferate, it is critical that conceptual planning be guided to rapid understanding through ISR integration.[78] It is not enough to wait until detailed planning efforts compile the questions that must be asked; instead, it is necessary to begin actively interacting with the environment as quickly as possible.

History shows the utility of ISR in providing the commander and his staff with real-time information to gain situational understanding. The best example of this from history was the development and utilization of the cavalry in the U.S. Army. Often cavalry, as the eyes, ears, and protective front of the infantry units gave the commander a method for quick responsiveness as well as a delay of the enemy's understanding of friendly actions.[79] The importance of ISR's

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[75] U.S. Army, *FM 5-0 2010*, 1-12.

[76] Ibid, 1-13.

[77] Frans P.B. Osinga, *Science, Strategy, and War: The Strategic Theory of John Boyd*, ed. Colin Gray and Williamson Murray, (New York: Routledge, 2007), 184-193.

[78] United States Army, *Field Manual Interim 2-01, ISR Synchronization, November 2008,* (Washington DC: GAO Printing Office, November 2008), vi.

[79] John J. McGrath, *Scouts Out! The Development of Reconnaissance Units in Modern Armies*, (Fort Leavenworth, KS: Combat Studies Institute Press, 2008), 177-200. McGrath provides a concise but comprehensive look at modern army reconnaissance units, their dynamic role, and the current struggles to link future ISR needs to organizational capabilities. A paradox

inclusion into the bridge between conceptual and detailed planning becomes evident as one considers this historic example.

The third pylon, targeting, is an integrated continuous process that enables the military to interact with the enemy through both lethal and non-lethal means. There is great utility in the use of targeting early and effectively in the planning process. Aside from observation, intelligence, and reconnaissance, targeting provides the most interactive means of influencing the enemy. The targeting process of detecting, deciding, directing, and assessing (D3A) nests comfortably within the operations process; assessment allows a feedback loop to provide real-time response to influence future planning. This relationship is not explicit enough in doctrine. To really understand the enemy being fought, interaction must be quickly initiated. The military accomplishes this interaction primarily through its technologically superior means of targeting.[80] One of the best examples of recent targeting was the air strike campaign that opened military intervention in Operation Iraqi Freedom. Targeting was an effective part of softening and shaping the situation for successful major combat operations to begin. One must also recognize through the failure to "decapitate" Saddam's regime that even targeting has its limitations.[81] Targeting, while an effective way to interact early with the enemy and shape battlefield conditions, should never be solely relied upon to achieve victory. To do so would overestimate U.S. technological capabilities to influence a thinking enemy to submission without human interaction. While IPB, ISR, and targeting bring a great deal to planning, the process is not complete without a thorough

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exists between ISR and maneuver that continually changes what assets conduct ISR. Regardless, ISR always proves essential to battlefield awareness and understanding.

[80] U.S. Army, *FM 5-0 2010*, 1-12.

[81] Gregory Fontenot, E.J. Degen, and David Tohn, *On Point: The United States Army in Operation Iraqi Freedom*, (Fort Leavenworth, K.S.: Combat Studies Institute Press, 2004), 50, 86.

discussion of risk as well as a method for maintaining the collective knowledge of the organization.[82]

Composite risk management, the fourth pylon, is an essential integrating function and should be a consideration from the onset of planning efforts.[83] Risk is not a matter of gambling. It is a matter of identifying internal weaknesses before the enemy does and reinforcing those weaknesses wherever possible. Limited and precious resources require the commander to consider risk in every decision. As a former Assistant Secretary of Defense under the Reagan administration, former Marine, and a Vietnam veteran, Francis J. "Bing" West has openly commented on the lack of risk assessment conducted throughout the planning and execution of operations in Afghanistan and Iraq. Mr. West pointed out that it is necessary to identify one member of the planning team who will maintain the responsibility for risk assessment from the outset of planning operations; any assessment by a board, bureau, committee, cell or work-group will often become "watered down" or irrelevant. In turn, the most critical risks to the military mission and forces are often overlooked.[84] In the military, though the commander is typically the only one who can accept risk, certainly having someone assist in identifying risk early is crucial to a successful plan.

As the last of the five integrating processes mentioned in the 2010 *FM 5-0*, knowledge management is far from the least important aspect of planning in today's technology-saturated

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[82] United States Army. *Field Manual 3-60 The Targeting Process November 2010*, (Washington DC: GAO Printing Office, November 2010), 3-5.

[83] Ibid.

[84] Bing West, "War Fighting Factors in Iraq and Afghanistan," An address at the Marine Corps Heritage Foundation Museum on 5 March 2009, (con't on next page footnote) http://smallwarsjournal.com/blog/2009/03/war-fighting-factors-in-iraq-a/ (accessed 26 March 2011).

environment.[85] An adaptive and learning organization is one that is able to maintain large amounts of knowledge for all to access. There are an increasing number of new technologies and methods that enable one to store and access information. If not managed, the vast pool of knowledge can easily become overwhelming. As a positive note, today's technology-rich environment provides a great capability to enhance knowledge early in the planning process. One such example that has been leveraged in Iraq is "virtual right-seat." This technology enables units that have not yet deployed to begin to develop their conceptual understanding early by making video teleconference, email, and internet contact with their deployed counterparts well prior to deployment.[86] While not every situation affords this virtual opportunity, any method of gaining knowledge early in the planning process helps develop the necessary understanding prior to ever entering the combat environment.

In analysis, one can see that the integrating processes described provide five fluid means for informing, connecting, and supporting the operations process. These pylons help support the bridge between conceptual and detailed planning. Two of the five integrating processes maintain an explicit doctrinal relationship to both planning components. What seems to be lacking is the matured integration of Army design in externally supporting doctrinal manuals. Because these processes already exist, their lexicons are widely understood. As integrating processes, all five allow dynamic interaction back and forth between conceptual and detailed planning, as well as the operations process. Increased emphasis on these five processes and their relationship to the holistic planning effort would provide much needed clarity, synergy, and efficacy to the operations process.

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[85] United States Army, *Field Manual 6-01.1 Knowledge Management Section August 2008,* (Washington DC: GAO Printing Office, August 2008), iv to 1-9.

[86] U.S. Army, *FM 6-01.1 August 2008*, 3-13.

In summary, the five integrating functions expressed in current doctrine help make the bridge across the planning gap effective. IPB, ISR, targeting, composite risk management, and knowledge management all provide interactive and informative ways to understand, interact with, influence, and protect one's self from the enemy. What makes this bridge most important is the ability to move quickly and effectively back and forth between the conceptual and detailed planning components without delay or disconnect. This is what makes a military organization truly adaptive. To understand the relationship of Army design and the detailed planning of MDMP, it is easiest to explore the shared linkages between the two as they relate in context to each of the design frames. In the bridge metaphor, these three frames are the arches of the bridge.

Arch One: Establishing Organizational Awareness - Environmental Frame

The beginning of the commander's visualization process is the environmental frame of design. This is the first arch in the tri-arch truss bridge metaphor as seen in Figure 9.
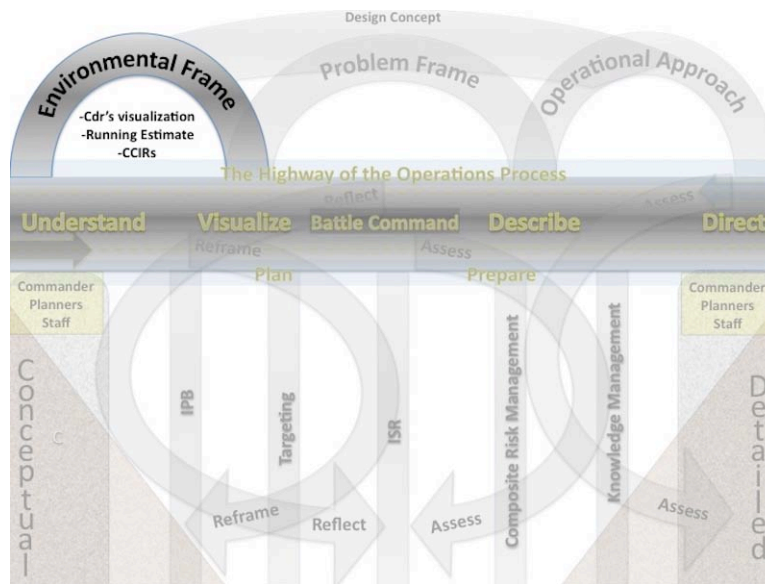
Figure 9. The First Arch: Environmental Frame

In chapter 2 of the 2010 *FM 5-0*, introduces the commander's visualization. The commander's visualization addresses many of the aspects that a planning team hopes to develop as they gain

understanding of the environment and begin answering the question: what is really going on here? This first requires a deep understanding of the environment and its actors. There are several methods for developing this understanding; most effective are the tools that are prepared and available at the time of planning.[87] Some of the elements that help develop the commander's visualization include subject matter experts, a common operational picture, and the commander and staff's own experience and judgment. Unlike some of the linkages, the commander's visualization will carry through all three frames of conceptual planning. Key aspects such as updated running estimates, applied principles of war, the elements of operational design, and the expression of his visualization through commander's intent, planning guidance, and commander's critical information requirements (CCIR) will follow directly into detailed planning efforts.[88]

As the commander's visualization begins to develop, the running estimate is one of the best tools available to begin collecting the necessary information about the environment and inform future planning.[89] The running estimate enables anyone to share in the expert knowledge

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[87] Gray, *War, Peace, and International Relations*, 9-12. Like the military PMESII-PT construct outlined in 2010 *FM 5-0* (political, military, economic, social, infrastructure, information, physical, and time) there is also another useful construct for today's environment known as the factors of strategic context outlined by Colin S. Gray: political, socio-cultural, economic, technological, military-strategic, geographical, and historical. Regardless of the construct chosen, the main purpose of such examination is to gain a broad holistic understanding of the environment through both analysis and synthesis. Tactically, METT-TC (Mission, Enemy, Terrain, Troops, Time, Civil considerations) is typically sufficient, but it solely depends on the complexity of and familiarity with the situation.

[88] U.S. Army, *FM 5-0 2010*, 2-9, 2-10.

[89] Ibid, 1-13, G-1. If maintained properly, the running estimate provides the continuous assessment of the current situation to "determine if the current operation is proceeding according to the commander's intent and if planned future operations are supportable." Dependent on situational context, it may be appropriate to encourage staff running estimates be created or updated prior to planning activities. A good running estimate includes helpful facts, assumptions, and environmental (friendly, enemy, and civil) considerations to inform the planning process.

of a particular staff section or war-fighting function, and this becomes critical, particularly when time is of the essence.[90]

Major Albert Wedemeyer, the primary planner who wrote the victory plan at the onset of World War II, knew all too well the importance of estimates. When Wedemeyer began to study the problem he was given, he started with a strategic estimate, pulling data and reports from the various agencies of the War Department and divisions of the government to formulate a viable mobilization plan into World War II.[91] Wedemeyer had a simple and methodical way of gathering the elementary data necessary to produce the strategic plan used for American mobilization into World War II. This is the same type of effective estimate that provides the foundation for precise detailed planning, and assists in bridging the gap between conceptual and detailed planning.

In addition to the importance of the running estimate, the commander's critical information requirements (CCIRs) and general information requirements (IR), are vital to the environmental frame's formulation. These questions quickly refine what one thinks he knows, what one knows he doesn't know but needs to know, and most elusively, what one doesn't know he doesn't know. Depending on the contextual situation, running estimates should provide a basis for preexistent IRs.[92] If IRs exist, they should be updated and adjusted as learning develops to gain proper insight to the requirements necessary to understand the specific problem as it is currently perceived. The critical information requirements for the commander should begin to be identified as early in the planning process as possible.

In analysis, rigorous questioning and answers are required to understand the environmental context. The three elements—the commander's vision, the running estimate, and

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[90] U.S. Army, *FM 5-0 2010*, B-38.

[91] Charles E. Kirkpatrick, *An Unknown Future and a Doubtful Present: Writing the Victory Plan of 1941*, (Washington, D.C.: Center for Military History, U.S. Army, 2010), 55-79.

[92] U.S. Army, *FM 5-0 2010*, 1-13.

CCIRs—mentioned within the context of the problem frame enable the systemic process of understanding. While these elements are already doctrinal, they are only briefly discussed relative to conceptual planning. The earlier that information requirements are established and running estimates are updated and leveraged, the more complete an understanding everyone involved in the planning process will have. Asking exploratory questions and leveraging collective knowledge such as running estimates provides a higher level of understanding. The commander's visualization in matured form provides the necessary synergy and efficacy required to execute any given plan.

In summary, continuous refinement of products such as the commander's visualization, running estimates, and CCIRs are critical in developing a mature understanding of a constantly changing environment. Understanding does not end with the environment. One must also understand the obstacles and challenges that stand between the current situation and the desired state. These challenges make up the military problem, which is the next arch in the bridge metaphor.

Arch Two: Developing Organizational Understanding - Problem Frame

As an organization develops understanding through its awareness of the environment, it also gains an appreciation of the military problem. Regardless of having a mission, every problem presents the need for transformation of a current state to a desired state. Identifying the problem is part of design's conceptual problem frame. The problem statement, as made explicit in doctrine helps answer the question: what is the organization trying to accomplish? When interacting with complex situations, the nature of the problem may differ at each echelon of command.

Regardless, every echelon should clearly define "the problem or problem set to solve."[93] Figure 10 depicts the problem frame in context:
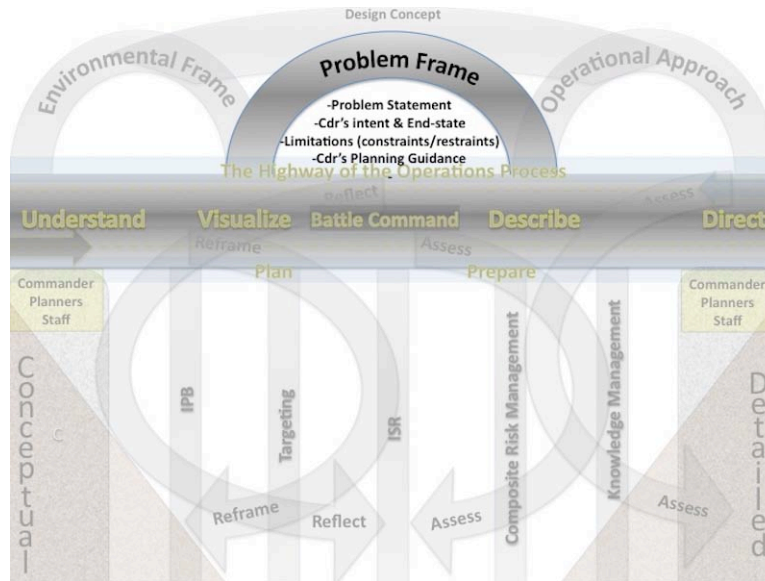
Figure 10. The Second Arch: Problem Frame

The military problem statement provides significant direction for an echelon challenged with a complex and/or unfamiliar problem. Each level of command has a different level of problem satisfaction. That which is acceptable at the Theater, Army, or Corps levels may need to be refined for lower echelons. The accuracy and relevancy of the problem statement at each echelon of command provides this necessary satisfaction.

In addition, the initial commander's intent and end-state are also vital to the problem frame of conceptual planning. These two elements are already explicit in doctrine. The earlier the staff and planners are exposed to the commander's intent and end-state, the more quickly they can focus subsequent detailed planning efforts in an informed manner. The benefit of formulating the commander's intent within the Army's design concept is the clarity that will come from iterations of the commander sharpening his own intent over time, and the staff's exposure to it.

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[93] U.S. Army, *FM 5-0 2010*, 3-11.

Auftragstaktik, which was the German methodology of leading soldiers, embodies the same principles of precise mission-type orders that are emphasized in the U.S. Army's mission command.[94] For many years, the United States Army has prided itself in the intent-driven approach it has utilized to conduct operations, and the impartation of a more clear and precise commander's intent and end-state is paramount. Intuition, experience, and knowledge applied to his current understanding provide every commander a basic intent and end state. Given a specific context, the commander's intent and end state takes on the necessary form to respond to the unique problem and guide an initiative-driven formation in the commander's desired direction. Time spent developing the baseline intent and end-state in conceptual planning provides more precise guidance for the staff to conduct more efficient detailed planning.

Because the problem statement and commander's intent are developing, recognizing assumptions, limitations, and essential tasks becomes critical in continued planning efforts. In an article about Systemic Operational Design, the grandfather of Army's design concept, Huba Wass de Czege addressed assumptions that are made within the conceptual phase of planning: while in detailed "planning we make assumptions of fact, in design, we make assumptions of truth in causal logic."[95] Assumptions, therefore, are a necessary form of limitation that is vital to continue both conceptual and detailed planning efforts in the absence of information. Formally expressed in doctrine, limitations include constraints and restraints. Constraints, or the *must do's*, often reference the function and evaluation of the design; restraints are the *can't do's* or restrictions placed on the conceptual plan by internal or external factors.[96]

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[94] Lieutenant Colonel Lawrence G. Shattuck, "Communicating Intent and Imparting Presence," *Military Review*, Volume LXXX, No. 2, (March-April 2000): 66.

[95] Wass de Czege, "Systemic Operational Design," 10.

[96] Bryan Lawson, *How Designers Think: The Design Process Demystified, 4th Ed.*, (Boston MA: Architectural Press, 2006), 109.

If time permits, limitations should be identified in the conceptual phase of planning. The challenge of the architect and the military planner are quite similar in this regard: when faced with a complex problem, they must create a design that meets all the constraints, while avoiding the violation of any restraint. For this reason, planning limitations, if sharpened early in the process, provide fidelity and precision in the effective use of resources in solving the problem. The North Atlantic Treaty Organization provides an excellent example of the need to consider limitations at the outset of planning. These Coalition forces could waste much time and resources if they do not take into considerations the limitations of each individual nation and their operational capabilities, limitations, or caveats.[97] This type of constraint or restraint significantly affects how forces may be employed in the planning process.

In considering the metaphorical planning bridge, the last significant part of the problem frame is the commander's planning guidance. This planning guidance is paramount to the cohesion and direction of a staff's planning efforts. Guidelines for the commanders planning guidance are defined in Appendix D of the current *Field Manual 5-0*; these provide a range of topics (general to detailed) that may be addressed as the commander sees fit. Most notably, it is here that doctrine makes mention of elements of operational design. These elements provide an operationally principle-based guide to ensuring the substantive nature of the conceptual plan.[98] Based on time constraints and other factors, the commander may have to intuitively prioritize and focus efforts on those elements that are most critical to his intent and end state.[99] Certainly the guidance checklist helps the commander identify those aspects he believes require the most critical attention for focused planning efforts.

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[97] David M. Toczek, "Knowing the Rules: planning consideration for NATO Operations," *Military Review*, Volume LXXXIX, No. 1, (January-February, 2009): 59-63.

[98] The elements of operational design briefly discussed in note 92 are principles that should be applied to all military operations and campaigns.

[99] U.S. Army, *FM 5-0 2010*, D-1.

In analysis, sharpening the organization's understanding of the military problem enhances an understanding of how best to achieve the desired end state. There are many elements mentioned in this frame that already maintain a distinct relationship between the conceptual and detailed planning realms: the problem statement, commander's intent and end-state, assumptions, limitations, and essential tasks, and commander's planning guidance all have a dedicated place in doctrinally linking the conceptual to the detailed. Furthermore, the current matured lexicon for these elements provides a flexible framework to influence conceptual and detailed planning interchangeably. The synergy within the arch of the problem frame emanates from the commander, his refined visualization, and the staff. Planning guidance, the end-state, and the commander's intent formulated in mission-type orders continue to be the single most effective element of the American way of war. In regard to efficacy, there are few armies in the world that leverage subordinate initiative with the commander's intent quite as effectively as the United States Army. Therefore, these three elements portrayed within the problem frame provide powerful linkages between conceptual and detailed planning.

In summary, the problem frame attempts to answer the question: what is the organization trying to accomplish? The problem statement provides the compass to ensure planning efforts are focused and always headed in the same collective direction. The developing commander's visualization, in the form of his intent and the end-state, begins to formulate during problem framing. Limitations, in the form of assumptions, constraints, and restraints focus planning efforts, compensate for gaps in information, and ensure a feasible operational approach may be developed. The commander's planning guidance provides a synergistic unity of effort for the staff to continue planning efforts. Each of these elements is fundamental in successful planning activities, and provides the necessary responsiveness for effective execution. While understanding the environment and the military problem are quintessential to developing a coherent plan, there would be no detailed planning or action without the formulation of an operational approach.

Arch Three: Organizational Solutions - The Operational Approach

The third arch in the tri-arch truss bridge metaphor is the operational approach. This arch is the final of the three arches that link conceptual design to the detailed planning. The operational approach synthesizes much of the understanding gained from the environment and the military problem into a conceptual array of options available for further development in detailed planning. As depicted in Figure 11, the parts of the operational approach that are relevant to this discussion are the concept of operations, mission narrative, coordinating instructions, and branches and sequels. The most critical links within this arch are the concept of operations and the mission narrative. Within the concept of operations and the mission narrative must be the balance between information and action to optimize the planning effort into an effective plan. These two elements in concert with each other provide the necessary framework to understand how operations will be conducted. Already made explicit in doctrine, the operational approach truly is the most important linkage that exists between conceptual and detailed planning because it establishes the connection between the broad conceptual plan and mission-type orders.[100] In doctrine, the information-based approach involves collecting more information to come

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[100] There are many elements that need to be addressed to provide the broad yet clear understanding of what the commander desires. There are no clear right or wrong methods or formats for a mission narrative, but what must be conveyed is the answer to "how is the organization going to achieve the desired end state?"
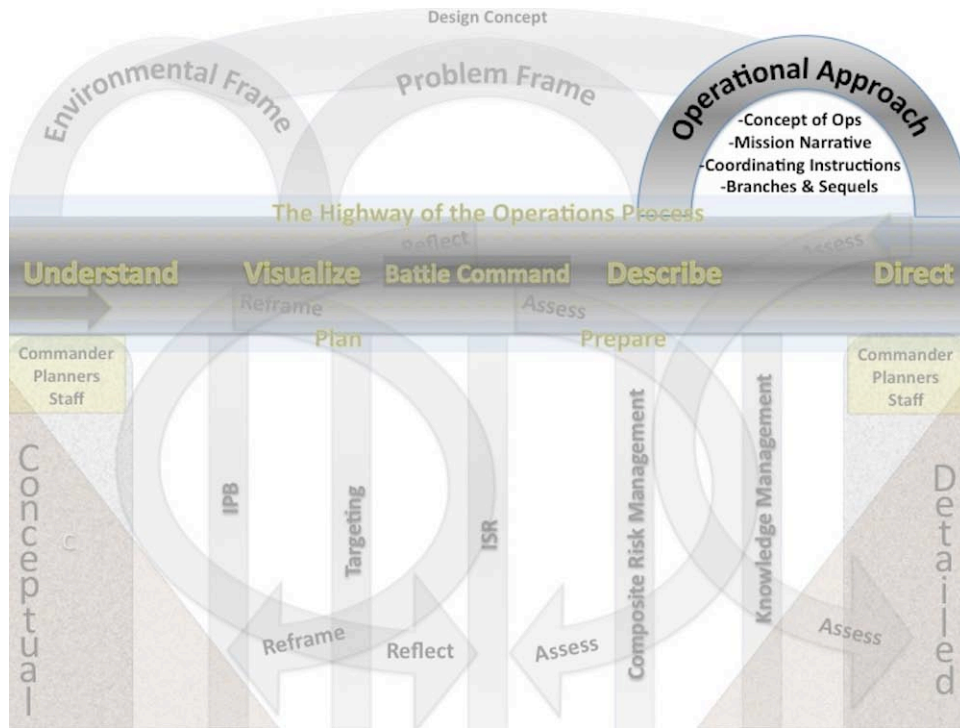
Figure 11. The Third Arch: The Operational Approach

about better understanding earlier in the planning process; the action-focused solution requires

more general, flexible orders and a force that can be agile, adaptive, and decisive at the lowest

echelons.

The concept of operations in detailed planning, is defined as "a statement that directs the

manner in which subordinate units cooperate to accomplish the mission and establish the

sequence of actions the force will use to achieve the end state."[101] Since tasks and concepts are

often broad in the conceptual stage, identifying the tasks critical to mission success helps further

define lines of effort and decisive points imperative to detailed planning.[102]

The relationship between the mission narrative and the concept of operations also

provides the commander with the earliest recognition of where it may be necessary to underwrite

risk. It also provides insight to the need for additional resources if they should become necessary

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[101] U.S. Army, *FM 5-0 2010*, 2-15.

[102] Ibid. D-1.

for mission accomplishment. The articulation of this information in mission-type orders is the defining characteristic of effective military planning.

Mission-type orders are derived from a rich understanding of the military problem identified in the problem frame.[103] The operational approach is meant to generate options, lines of effort, and broad courses of action to prepare the plan for a more detailed development. In addition, the instructions for coordination between subordinate, adjacent, and higher headquarters are especially important for the success of the operational approach.

Coordinating instructions are not explicitly part of conceptual planning in doctrine. they are critical to planning between echelons. Coordinating instructions are those important tasks that apply to two or more units within an organization's authority.[104] It would seem prudent, considering the intent of coordinating instructions, that this too be a part of the conceptual operational approach. As doctrine highlights, initial CCIRs, EEFIs, functional area-specific rules of engagement, risk reduction control measures, and environmental considerations all may be formulated if collective efforts have developed any specific instructions that would affect the broad concept.[105] The most flexible plans are those that have come up with answers for the 'what if' questions, and more often than not, these questions appear in the inquiry that occurs during the exploratory conceptual planning phase. This leads to the idea of branches and sequels.

The last part of this discussion of the operational approach centers on branches and sequels. When planning assumptions turn out to be false, a branch plan is required. A sequel is the continuation of a plan after an identified point of achievement (success, failure, transition).

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[103] U.S. Army, *FM 5-0 2010*, 1-8; and U.S. Army, *FM 6-0 2003*, 1. As of the writing of this monograph, mission command is in final draft of becoming a warfighting function. While the implications of this are yet to be realized, what is known is that mission command as discussed in FM 5-0 "requires plans with the proper balanced level of detail" as to not stifle initiative, yet give clear direction.

[104] U.S. Army, *FM 5-0 2010*, E-23.

[105] Ibid.

Time usually becomes the enemy to developing branches and sequels. However, the development of contingencies for the potentialities identified early in Army design provides a more informed response. Even if the possibility is only briefly explored, noted, and archived, better understanding is provided than if it were not addressed. The earlier a branch or sequel is identified and attached to detailed planning activities, the more flexible an organization may be and the more thorough the commander's guidance, intent, and end-state can be. In 1998, Huba Wass de Czege alluded to the importance of option generation.[106] Branches and sequels are an effective way to achieve this option generation through the operational approach.

A historical example of a successful operational approach is the methodical planning iterations that were conducted to reach a feasible, acceptable, and suitable course of action for Operation Overlord in the beginning of World War II.[107] Operations in the Mediterranean, the German disposition of aviation and troops, and the Allied force generation limitations provided formidable conceptual obstacles to Allied success. However, several branches and sequels were developed in the process to enable execution should the opportunity present itself. Various methods of deployment, insertion, and landing areas were considered and developed to remain adaptive to the constantly changing strategic environment of the war. Operation OVERLORD was a success in part because branches and sequels took into consideration the possible outcomes and needs throughout the planning of the operation. When branches and sequels are not considered, shortsightedness can replace time as a limitation. A commanding general officer once commented that "we constantly get caught planning left to right, we need to rightly focus our

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[106] Brigadier General Huba Wass de Czege, and Major Jacob Biever, "Optimizing Future Battle Command Technologies," *Military Review,* Volume LXXVIII, No. 2, (March-April, 1998): 15-21.

[107] Forrest C. Pogue, *The Supreme Command*, (Washington, D.C.: Governmental Printing Office, 1996), 107-122.

planning energies from right to left, so we can stop getting caught focusing last minute planning effort on 50 meter targets, and can focus on the 200 or 300 meters."[108]

In analysis, basic linking elements of the operational approach, such as the concept of operations, coordinating instructions, and branches and sequels are already components of MDMP. Because the mission narrative is a broader version of the concept of operations, it can easily be crafted to nest with the other three detailed planning elements mentioned. The three detailed elements provide the mature lexicon of terminology necessary to translate between conceptual to detailed planning. It is within the operational approach that the commander should analyze how the generated options might play out on the battlefield before driving into the detailed planning of a specific course of action. Coordinating instructions allow for synchronicity among command echelons, while branches and sequels aid in the efficacy of the operational approach by planning for various outcomes. A well-developed operational approach allows generated courses of action to be more fully developed, making the operations process more effective in execution.

In summary the operational approach provides the backbone to move forward into detailed planning through the concept of operations and the mission narrative. These two items provide the general conceptual construct to formulate specific courses of action. The commander's intent and end-state provide the planners and staff important focus and precision to continue with detailed planning efforts. Coordinating instructions allow particular synchronicity to be attained early in the planning effort between command echelons. With all that being said, this planning process cannot be adaptive without an ability to go both ways across the bridge, to

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[108] A general officer commanding in recent contingency operations was intimately dealing with problems of planning and assessment and provided two insightful comments used in the argument of this monograph.

and from conceptual and detailed. Metaphorically, the method for accomplishing this is through

on-ramps and off-ramps of assessment, reflection, and reframing.

On-Ramps and Off-Ramps of Assessment, Reflection, and Reframing

The processes of assessment, reflection, and reframing enable an organization to

determine its success in achieving the desired end state. The bridge blueprint shows these three

processes as on-ramps and off-ramps as depicted in Figure 12.
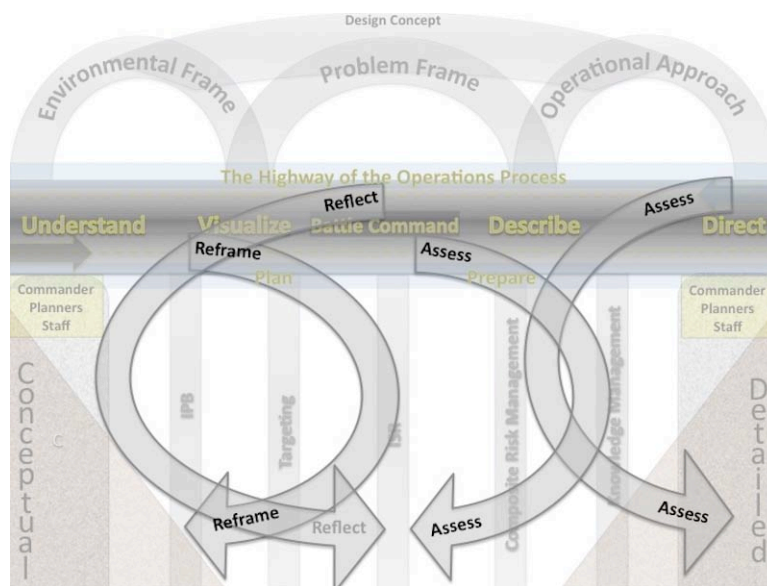
Figure 12. The On-ramps/Off-ramps of Assessment, Reflection, and Reframing

While not explicit in Army design as such, these processes provide the operations process and

battle command with the ability to observe, analyze, and change in an attempt to achieve the

desired results. In the assessment realm, the Army employs an Operational Research and Systems

Analyst to help the commander assess his operations. Though accurate assessment is an effective

way an organization can confirm that the plan is working, it is often neglected or misapplied in military operations.[109]

War-gaming and virtual exploration are excellent assessment tools that can be used prior to interacting with the actual environment.[110] In spite of the time it takes, assessment is vitally important when lives are on the line and Soldiers are being put in harm's way to achieve a desired military result.

Reflection is the cornerstone of effective planning. Donald Schon, a master architect and education practitioner, says it best:

> In general, the more an organization depends for its survival on innovation and adaptation to a changing environment, the more essential its interest in organizational learning. On the other hand, formal organization is a cooperative system in which individuals depend on the predictability of one another's responses. ...Surprise, which is essential to learning, is inimical to smooth organization functioning. Thus organizations evolve systems of error detection and correction whose function is to maintain the constancy of variables critical to organizational life. They are 'dynamically conservative.'[111]

Clausewitz identifies the man that acts out without reflection as one of low intelligence.[112] In short, reflection is critical to organizational survival.

Reframing is necessary when a fundamental surprise causes an organization to question its assumptions or understanding.[113] If reframing does not occur, the situation can quickly get out

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[109] "Assessing a plan's assessable nature rather than assessing the plan is not the intent of assessment." A general officer commanding in recent contingency operations was intimately dealing with problems of planning and assessment and provided two insightful comments used in the argument of this monograph.

[110] Major Lawrence T. Brown, "The Enemy We Were Fighting Was Not What We Had Predicted: What Is Wrong With IPB At The Dawn Of The 21st Century?" School of Advanced Military Studies United States Army Command and General Staff College Fort Leavenworth, Kansas AY 03-04, this monograph emphasizes some deficiencies in IPB doctrine, and the importance of a holistic understanding of the enemy.

[111] Donald A. Schon, The Reflective Practitioner: How Professionals Think in Action, (USA: Basic Books, Inc., 1983), 327.

[112] Clausewitz, *On War*, 103.

[113] Ibid, 108.

of control. For example, the insurgency in Iraq was a fundamental surprise to coalition forces. Analysts have noted that the failure to reframe the problem in regard to this new development was detrimental to the U.S. mission success in Iraq.[114]

In analysis, assessment and reframing provide the least explicit relationship between conceptual and detailed planning efforts. Though the relationship tends to be implicit, there is a common doctrinal lexicon established between the two realms. While assessment and reframing are both explicit in doctrine, the practice of these actions proves to be more an art than science. When assessment and reframing are done correctly, they provide the most synergistic and effective operations process possible, but in the heat of battle, these aspects are often overlooked or dismissed in preparation for the next major event. The third aspect of reflection, while emphasized by Clausewitz in *On War*, has not yet found a place in U.S. doctrine. It is the feedback loop and adjustments from these three aspects of planning that enable an organization to learn and adapt.

In summary, the on-ramps and off-ramps of assessment, reflection, and reframing are critical to the adaptive learning abilities of an organization. Both the operations process and battle command provide the necessary feedback loop of assessment, and all planning activities should be heavily influenced by the resultant information. Without assessment, reflection, or reframing, an organization becomes static, and it is only a matter of time before it ceases to be effective. This leads to the final and most influential aspect of the metaphorical bridge: the abutments of leadership.

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[114] Thomas E. Ricks, *Fiasco: The American Military Adventure in Iraq*, (New York, N.Y.: Penguin Group Inc., 2006), 169-176. Mr. Ricks is critical of both political and military leadership for not recognizing and listening to the indicators that there was an insurgency occurring on the ground in Iraq in 2003.

The Abutments of Command & Leadership: Essential for structural viability

The operations process calls for commander involvement in the decision-making process, regardless of the time available, the planning method applied, or the means used to achieve the desired end state.[115] Therefore the commander's approval and understanding of the plan throughout its development is absolutely necessary. As seen in Figure 13, command and leadership form the abutments that allow the bridge to connect to both sides of the planning gap in the bridge metaphor.
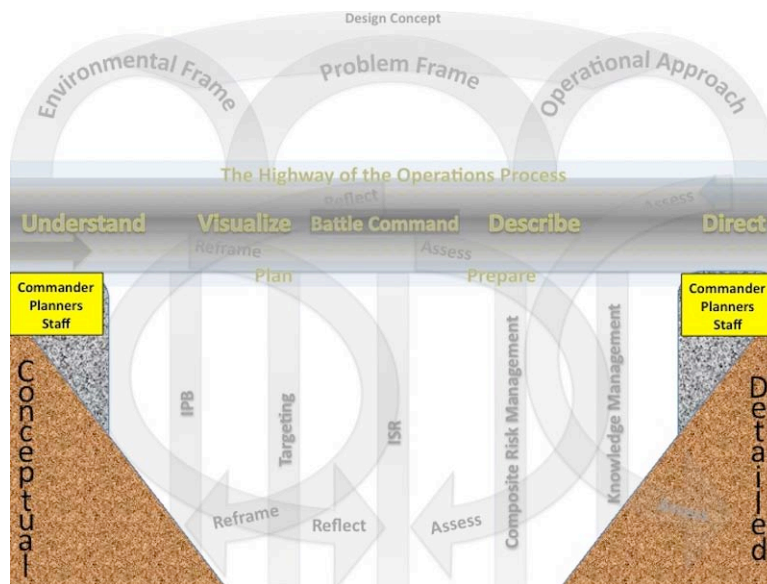
Figure 13. The Abutments of Command and Leadership

The hierarchical nature of a military organization demands that the commander is responsible for the success or failure of his unit. He is the central figure that approves each major phase of the planning process, whether through a mission analysis brief, an in-progress review, or other doctrinal methods. The current *Field Manual 6-0* emphasizes the importance of command

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[115] U.S. Army, *FM 5-0 2010*, vi; U.S. Army, *FM 3-0 2008*, 5-1 to 5-2; and U.S. Army, *FM 6-0 2003*, 4-0.

and support aspects of command and control.[116] Command and control is defined as "the exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of a mission."[117] Command and control is said to be the hardest thing a commander and a staff must work through in today's Multi-national, Joint, Interagency environment.[118]

The mistake of establishing an effective and adaptive command and control (C2) structure too late in the planning process can be seen today in the C2 structure that has emerged over the decade of conflict in Afghanistan. As organizations came and left, and the Theater matured over time, the Command and Control structure unfortunately did not. The rigorous thought and conceptual planning necessary to create the details of an effective C2 infrastructure took time to redefine, and to this day, there are improvements being made to ensure these relationships are clear. Colonel Grigsby, current director for the School of Advanced Military Studies, elaborated on the command and control challenges in Iraq and Afghanistan:

> Command and control is difficult because hard choices must be made; clear and critical thinking must prevail. Unfortunately, in reality, these decisions at every level are often pushed down in the hopes that subordinates will solve the hard problem. What is needed are senior leaders who understand command and support relationships, recognize the importance of proper Task Organization, and express these in the use of our institution's operational terms and graphics. This will lead us to, at a minimum, missions with a Unity of Effort, and ideally, missions with a Unity of Command. Four years of combat experience have confirmed both the positive and negative aspects of this discovery for me. Not having unity of Effort or Command will cause us to fail in our mission and worst of all cost the Nation's blood and treasure: our Soldiers.[119]

These comments strike right at the heart of the importance of not only command and control, but also the conceptual planning that should go into it. This example provides further justification for

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[116] U.S. Army, *FM 6-0 2003*, 5-22, 5-23.

[117] Ibid, Glossary-4.

[118] Colonel Wayne R. Grigsby, Director of the School of Advanced Military Studies, email to author discussing command and control, 31 March, 2011.

[119] Grigsby, email. 31 March 2011.

the increased emphasis on the conceptual planning aspect of operations and the importance of the connection between conceptual and detailed planning.

In analysis, doctrine explicitly references the involvement of the commander, the staff, and planners. The challenge is translating this collective involvement into practice. Without question, the commander with a mature staff of competent planners provides the most optimal synergy, standardized lexicon, and highest levels of efficacy to the operations process.

In summary, it is up to the commander, his staff, and his planners to provide the proper organizational environment for the development of an effective plan. The commander must be the central focus of organizational activities because his guidance and intent are critical to mission success. The staff and planners should provide respectful feedback to inform and influence the commander's thought processes for the best decisions possible. As seen in Iraq and Afghanistan, the command and control structure alone can destroy the potential strengths of an organization by inducing confusion and lack of unity of effort in military action. This aspect of planning like many of the others mentioned throughout this discussion must be a focus within conceptual planning to establish the necessary bridge between conceptual and detailed planning.

Conclusions

As this monograph began with a bridge vignette, so also will it close that way. Going back in time, the date is 7 November 1940. The location is Tacoma, Washington where the Tacoma Narrows Bridge, which began construction in September 1938, has been open for just about four months. The winds are strong; upwards of 40 miles per hour, and the Tacoma Narrows bridge, also known as 'gallopin' girdie,' begins to demonstrate an oscillation that had never been seen in bridges before to such a magnitude. The designers couldn't design for it, the builders couldn't reinforce against it, and the inspectors were unsuccessful in putting in safety measures to avoid it. Based on all the knowledge of that time, the Tacoma Narrows Bridge was the latest in bridge-building technology and science. Yet, the events of 7 November 1940 would change scientific understanding forever. A phenomenon known as aerolastic flutter caused by extreme winds on caused the main span of the bridge to rhythmically twist into structural failure. The bridge literally fluttered to failure. No one at the time knew that this could occur. Even when small vibrations were noticed, all the scientists underwrote the risk because of the bridge's mass and structural integrity. The most current knowledge of the era could not have predicted this outcome for what was the third longest suspension bridge in the United States at that time.

Today, the Army finds itself in the same place as the team that designed and built the Tacoma Narrows Bridge. In order for the U.S. Army to avoid a similar catastrophic event, the Army must acknowledge that knowledge will always be imperfect, and in a place of complexity and uncertainty, there will always be a range of unexpected outcomes. All that can be done is to plan for a range of the possible as best as time, experience, and capability will allow. In order to do this, conceptual and detailed planning activities must be a unified and continuous effort.

Through analysis of theory, history, and doctrine, this monograph provides a basis for critical exploration of the linkages between conceptual and detailed planning. It has been established that though they can be artificially separated, conceptual and detailed planning should not be distinctly separated activities. The critical linkages between conceptual and detailed

planning activities have been identified through the use of a bridge metaphor; these enable the seamless transition required for superior military planning and operational execution.

Four criteria have been used to evaluate the linkages in the bridge metaphor: a clearly articulated relationship between the conceptual and the detailed; synchronization and synergy between Army planning processes; a common lexicon; and lastly, an increase in the efficacy of the operations process. While the list is far from exhaustive, the linkages highlighted in this monograph have attempted to capture the most critical aspects of a holistic planning process that moves seamlessly between conceptual and detailed planning. Specifically, the linkages articulated in this monograph effectively begin to bridge the gap that currently exists between the Army's conceptual planning method of design and its detailed military decision making process.

As the United States begins to close the door on a decade of armed conflict in central Asia, senior Army leaders, including the confirmed future Chief-staff-of-the-Army, continue to emphasize that today's Army leadership requires better tools to deal with the aspects of the complex global environment. This emphasis has brought the Army to earnestly seek out a planning paradigm that will enable its leaders to be more flexible, agile, adaptive. EBO, NCW, and SOD have all had limited levels of success in attempting to provide the U.S. military forces with a superior model appropriate for today's complex military problems.

Over the years, U.S. Army doctrine has continued to develop the aspects of conceptual and detailed planning. Today's latest doctrinal planning manual, *Field Manual 5-0 The Operations Process 2010* includes the traditional MDMP & TLP, as well as a new inclusion of Army design. In the latest changes, Army design has been defined as a methodology that assists the commander and staff to apply critical and creative thinking to understand, visualize, and describe complex, ill-structured problems, and develop approaches to solve them. Army design allows the commander, staff, and planners to effectively address with the contemporary environment in the conceptual planning realm, but leaves them lacking in a realistic

understanding of how Army design effectively links to the MDMP. Simply put, current doctrine proves cumbersome, confusing, and desynchronized from effective operations.

Using the metaphor of a bridge, this monograph has included historical examples, today's doctrine, and the insights of various theoretical and practical works to help identify the linkages that more effectively connect the conceptual planning to the detailed planning side of the gap. The super-highway of the operations process driven by battle command provides the bridge its ability to move traffic; there are on-ramps and off-ramps throughout the bridge which consist of assessment and reflection, much like any effective super-highway, allowing the driver flexible mobility. The five integrating processes provide the necessary pylons to support the bridge's weight. Most essential to any bridge, the abutments of command and leadership provide the vital foundation on which the bridge rests.

The first arch, the environmental frame, addresses the commander's visualization, running estimates, and CCIRs. It is built on the foundations of the commander, his staff and their development of understanding. The second arch, the problem frame, addresses the problem statement the commander's intent, planning guidance, and limitations to include assumptions. It focuses its attention on understanding the military problem and how the organization should move forward in planning. The third arch, the operational approach, consists of the mission narrative, the concept of operations, coordinating instructions, branches and sequels. It provides the feasible, acceptable, and suitable a generation of broad options for the commander to leverage in influencing the enemy. All three of these arches are reinforced by historical insight and practical examples as to the importance of the various linkages. These arches also intend to provide clarity and structure to the detailed work associated with developing a selected course of action.

The abutments of leadership provide the essential support structure for which to build the metaphorical planning bridge. It is through the interaction of the commander, his planners, and staff progress planning efforts back and forth between integrated planning activities. Assessment,

reflection, and reframing provide the necessary conduits to move back and forth between the conceptual and detailed activities of planning. This metaphorical bridge, tested under the rigor of four evaluation criteria demonstrates the importance of a seamless integration of conceptual and detailed planning, and ample lessons learned throughout the research and development of this monograph have led to several substantive recommendations.

Recommendations

Five substantive recommendations emerge from the research and analysis within this monograph. First, doctrine must return to the fundamentals. Second, the Army should endeavor to combine Army design and MDMP into one rigorous and holistic planning process. Third, the Army should refine Army leader and Soldier training and education to instill and develop critical thinking skills at all levels. Fourth, the Army must focus on further development and publication of assessment, reflection and reframing techniques in military operations And lastly, further research and experimentation will move the Army towards becoming a truly adaptive military organization.

First, doctrine must return to the fundamentals to remove the ambiguity that numerous discrete processes have generated. These elaborate tactics, techniques, and procedures (TTPs) have overwhelmed doctrine. This monograph alone has mentioned the operations process, battle command, Army design, MDMP, IPB, ISR, and targeting to name a few. Rather than focusing on lock-step procedures and protocols, doctrinal manuals must succinctly address theory, history, and successful practice. Clarity and brevity are essential to effective doctrine. In addition, current Army manuals must be mutually supportive, and there must be no ambiguity in the regard to the relationship between various manuals and the concepts and principles contained within them. Doctrine must maintain one resounding and memorable voice.

Secondly, the U.S. Army should combine Army design and MDMP into one rigorous, holistic planning process. This monograph has attempted to demonstrate the inseparable nature of

conceptual and detailed planning. The success of building a metaphorical planning bridge confirms that one holistic planning model could and should be developed. Neither planning tool effectively meets the needs of dealing with the inherent complexity of war, but both in refined combination may provide an adaptive and flexible planning process. Only in this way will the Army successfully incorporate the strengths of Army design and MDMP.

Thirdly, the U.S. Army should improve education and training for its leaders and Soldiers at all levels. Through modeling and training exercises, the Army must instill how to think: critically and creatively; through analysis and synthesis. It is this balanced understanding within the operations process that provides the necessary ability to respond to complexity and uncertainty. This balance is difficult enough to mimic, model, or demonstrate in education and training, and more complicated still, if not impossible, to capture in the words of doctrine or TTP. Therefore education and training are essential to developing this kind of balanced, adaptive, and agile quality.

Fourthly, the applications of assessment, reflection, and reframing must be further expounded upon in doctrine. While Army processes attempt to provide the ability to be flexible and adjust the plan, reframing becomes an integral part of the operations process. As well, more often than not, the resistance to reframe is prevalent in a hierarchical institution such as the Army. For this reason, an explicit encouragement and allowance for reframing would free commanders and staff to step away from the problem. In turn, this would further allow them to better recognize personal biases and re-attack the changing problem before it is too late. Current institutional biases still reinforce the aversion for both reflection and reframing. This characteristic must change if the Army desires to become a true learning organization.

Lastly, in order to become the learning organization the U.S. Army seems to endorse in its current future strategy, it must not only change the way it thinks, but also the way it organizes and equips itself. A learning organization must act as a holistic system. This idea generates a long litany of further research and discourse that must be initiated to recognize what it truly means to

be to a military organization to mimic a highly adaptive and flexible organism. Complexity and uncertainty are inherent to the nature of war. These two characteristics of war can only be addressed when it is recognized that they cannot be completely overcome. It is more useful to encourage the use of a wide scope of scientific principles, theory, and history, than to attempt to prescribe better tools to cope with these two tenured elements of war. To defeat an adaptive and thinking enemy, the U.S. military must continue to make bold and swift changes based in simple yet profound doctrine. The ability to think, learn and adapt will always be central to the U.S. Army in coping with the complexity and uncertainty of future war, and each of these recommendations move the Army institution in that direction.

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